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The Hunterian Lecture

ON

THE ASSOCIATION OF DISEASE OF THE MOUTH WITH RHEUMATOID ARTHRITIS AND CERTAIN OTHER FORMS OF RHEUMATISM.

Delivered at the Royal College of Surgeons of England on March 6th, 1911.

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MR. PRESIDENT, VICE-PRESIDENT, AND FELLOWS,—I wish to express my deep sensibility of the honour you have conferred upon me in electing me as one of your Hunterian professors this year. The subject which I have with your consent chosen for this lecture is one which I feel sure would have appealed to that indefatigable worker in whose memory these lectures are established, and my aim will be, as a humble follower of John Hunter, to endeavour to correlate certain pathological facts in a new light.

When investigating any of the diseases affecting the joints of the human body the investigator is at the very outset hampered by the nomenclature of his subject: rheumatoid arthritis, osteo-arthritis, rheumatic gout, arthritism, polyarthritis, to cite a few of the hundred names applied to disease of the joints. In the earliest writings upon medicine, gout and rheumatism were confused and regarded as manifestations of one disease; in fact, Sydenham[1] was of the opinion that rheumatism was a modern disease and unknown to the ancients.

It is not necessary for the present purpose to critically survey the various divisions and subdivisions of diseases of the joints. A summary of the terminology and an epitome of the history will be found in Llewellyn Jones's[2] book on arthritis deformans.

REMARKS ON ETIOLOGY.

Recently the leaning of most writers has been to regard swellings affecting the joints as divisible into (*a*) those affections which have their primary lesions in the capsule and peri-articular tissues; and (*b*) those in which the seat of the lesion is in the cartilages and bony portions of individual joints. Broadly speaking, the first group, comprising affections of the peri-articular tissues, are generally regarded as of infective origin due to bacteria, either within the joint itself or to a toxin produced by organisms in some other part of the body; as Llewellyn Jones points out, many cases of arthritis in which a bacteriological examination is negative closely resemble the cases of ascertained microbic origin, not only as regards the character of the local arthritic change, but also the general aspect of the patient, the mode of onset of the disease, and its clinical course and behaviour under treatment. The second group, in which the disease apparently commences in the bony and cartilaginous structures of the joints, is not usually considered of direct infective origin.

Goldthwait[3] attaches great value to X ray photographs in differentiating infectious arthritis from that of his two other varieties, atrophic and hypertrophic arthritis, but Kienboch,[4] and more recently Lindsay,[5] have shown that in gonorrhœal arthritis the bones may not preserve their normal density. It is not only in gonorrhœal arthritis, however, but even in ordinary septic processes without any definite arthritic affection, that thinning and alteration in the density of the bone take place. Moreover, a septic process of low virulence, but of long-continued action, in the mouths of human beings invariably produces alteration in the density of the bone in the neighbourhood of the infecting process, as the accompanying radiograph shows (Fig. 1). The infection is not by any means always associated with a copious discharge of pus, but, as I pointed out in my Erasmus Wilson lecture in 1907,[6] loss of density (rarefaction) takes place without the discharge of pus into the mouth, and such rarefaction may be accompanied by sclerosis.

For some years the belief in the infective origin of arthritis deformans has been gaining ground, more especially with that group of cases usually described as rheumatoid arthritis. The initial joint disturbances in acute polyarthritis caused by the gonococcus, the acute onset of rheumatoid arthritis in which no organisms have been found, and the onset of acute articular rheumatism, exhibit similarity; and further, the changes in the joints found in acute polyarthritis of demonstrable infective origin are closely related to the joint changes in which after careful bacteriological search no infecting agent was found.

It is fully admitted that clinically an unbroken progressive series may be established from osteo-arthritis of unknown origin through rheumatoid arthritis, infective polyarthritis, to acute rheumatism, although individually each may be differentiated by certain typical symptoms. But it seems also an equally logical supposition to assume that such a series of cases, although perhaps not owing their cause to a common specific infective agent, may yet be due to infective agents possessing differing degrees of infectivity or virulence.

To sum up this preliminary survey of the subject, a large number of cases of arthritis deformans, using the term in its inclusive sense, are now recognised to be of infective origin, others are of definite neural origin, but between the two are a considerable number which, according to some observers, may be infective, according to others atrophic, neural, or even idiopathic.

CLINICAL EVIDENCE.

For some time my attention has been drawn to the presence of various so-called rheumatic symptoms in persons subject to disease of the jaws, particularly the type of disease known as pyorrhœa alveolaris, and associated with a discharge of pus from the gum margins and rarefaction of the alveolar process, and frequently the body of the bone. Lindsay in 1908 gives a report of 172 cases of rheumatoid arthritis in which particular inquiry was made for infective foci. In 88 of these cases an infective focus was found, 15 being men and 73 women, and 19 of the 73 women had definite pyorrhœa alveolaris. Lindsay further states that in the majority of the 172 cases some inflammation of the mouth existed, but only those cases where definite pus was to be found were included as pyorrhœa alveolaris. Lambert[7] in the same year says that of 190 cases 141 (76 per cent.) had badly decayed teeth or the teeth had dropped out and 49 (23·8 per cent.) showed teeth in fairly good condition; these latter were the younger patients. For many years pyorrhœa alveolaris was classed by the majority of surgeons as "gout in the mouth," and even amongst dental surgeons a special anatomical form of tooth is often referred to as a "gouty" tooth, and it is worthy of note that the particular gouty or rheumatic tooth so-called is invariably one in which the antero-posterior diameter of the crown is greater than the antero-posterior diameter measured at the gum margin; such teeth are liable to permit the accumulation of food in the interstitial spaces, to injuries of the gum and periosteum, and therefore to local infection. Strange as it may sound, I have often heard the pus oozing from the gum margins ascribed to the patient's rheumatic diathesis.

Two main types of disease of the alveolar processes of the jaws may be distinguished in relation to rheumatic affections:—(*a*) Easily bleeding hypertrophied gums, wasting of alveolus, discharge of pus from the alveolar margins. Loosening of all or individual teeth. (*b*) Thickening of the alveolar process (sclerosis) with area of rarefaction between individual teeth; alteration in position of individual teeth without loosening; showing atrophic gums, little or no discharge of pus. Microscopically pus may be found. In the more common types of mouth infection, where copious discharge of pus is found, where

[1] Opera, Sec. VI., c. 5.
Arthritis Deformans, 1909.
[3] Infectious Arthritis, Boston Medical and Surgical Journal, 1904.
[4] Volkmann's Sammlung Klinischer Vorträge, N.F., No. 315.
[5] Bulletin of the Committee for the Study of Special Diseases, October, 1908, vol. ii., p. 106
[6] Erasmus Wilson Lecture on Pyorrhœa Alveolaris, THE LANCET, March 9th, 1907, p. 633.
[7] Bulletin of the Committee for the Study of Special Diseases, vol. ii., pp. 11-95.

the teeth themselves become altered in position and length, and which become entirely loosened owing to the destruction of their sockets, the appearance of the bone in the neighbourhood of the tooth sockets is one of a general rarefying osteitis. This is perhaps the more common type. The accompanying skiagraphs show the extent to which rarefaction and perosis of the bone may occur, extending in some cases into the body of the bone itself. [A series of X ray photographs were shown illustrating this point.] As this rarefaction commonly gives no pain, the patient's attention is usually not called to the distressing condition until the teeth themselves are loose. Occasionally evidence of reparative sclerosis is seen.

I have already drawn attention to the importance of this mouth disease as the origin of certain generalised infections, but the peculiar import of alveolar osteitis in arthritis deformans lies in the fact that the alveolus of the jaw is the position in the body where the bony tissues are exposed to septic infection, while owing to the absence of pain treatment is most often neglected, the insidiousness of the onset more often precludes its early diagnosis, and, perhaps more important still, the infecting organisms become adapted to bony tissues.

Lindsay states that in the Royal Mineral Water Hospital at Bath particular attention is paid to the presence of infective conditions of the mouth, and cites two cases where the removal of the septic teeth arrested but did not cure progressive disease of the joints. Llewellyn Jones discussing diagnosis says: "Strong presumptive evidence of infectious arthritis may be drawn from the presence of any local source of infection, such as pyorrhœa alveolaris, otorrhœa, and so forth," and MacNamara[8] states that he had traced many cases to the chronic poisoning of septic teeth. Luff,[9] Spender,[10] Fayerweather,[11] and many others consider the gastro-intestinal tract as the origin of infection, while Hunter,[12] myself, and others have demonstrated the relationship of oral sepsis to gastro-intestinal affections. It is truly said that septic diseases of the mouth are remarkably common and that relatively arthritis deformans is rare; but, on the other hand, I can confirm Grünbaum's[13] experience that few, if any, cases of arthritis deformans have sound mouths. Further, the bacteria I have isolated from the mouth do not, as a rule, possess a high degree of virulence even when injected in large doses into laboratory animals, and it is not illogical to suppose micro-organisms of a low type of virulence habituated to the environment of bony tissue and peri-articular structures would be more likely to act as infecting agents in chronic processes than organisms possessing a high degree of virulence. This supposition receives considerable support from my own investigation, before detailing which it is necessary briefly to consider the present bacteriological knowledge of rheumatoid arthritis.

BACTERIOLOGY.

The earliest bacteriological work on Arthritis Deformans is that of Schüller,[14] who obtained fluid from the joints in a type of arthritis deformans clinically associated with early atrophy of the muscles, thickening of the synovial membranes of the joints and peri-articular structures, termed by him as *polyarthritis chronica villosa bacillaris*. Schüller described certain short bacillary forms which were easily decolourisable by the staining methods he used; in a later publication he says the organism stained by Gram's method. The organisms were found but rarely in the joint fluid, their seat of selection being the capsule and other structures outside the joint. Cultures were obtained by allowing fluid from the joint to drop through a cannula on to the culture media, or by triturating portions of the thickened synovial membrane or capsule and inoculating from the mass on to culture tubes. Schüller's bacillus produced greyish-white discrete colonies on agar in from two to six days, and grew readily on gelatin which was slowly liquefied. The organism remained alive on culture media for several months, retaining its virulence. Subcutaneous injections of 0·5 gramme to 1 gramme in rabbits were fatal in 24 hours; injection of a similar quantity into a joint produced swelling only, which became permanent in character, and resulted in a persistent limp. No pus was found in the joints, but the synovial membrane in places showed villous and brown fringes, sections of which were shown to contain the injected organisms. They were polar-staining bacilli which formed spores. Cocci were often found together with the bacilli, but were not regarded as playing an important part.

The next bacteriological work was that of Blaxall[15] in 1896, who examined fluid aspirated by Bannatyne from the joints in rheumatoid arthritis and found that by prolonged staining in concentrated solutions an organism could be demonstrated in the synovial fringes. This organism showed marked polar staining, the average length was 2μ, and the average breadth 0·6μ. Sometimes large numbers were found congregated round leucocytes. The organism almost completely decolourised by Gram's method, but not absolutely. Only two out of the 18 cases he examined showed organisms referable to skin contamination. He also examined a number of joint fluids in chronic synovitis, gonorrhœa, and other affections, without seeing this special form of organism. Attempts at cultivation were at first unsuccessful, but finally a growth was obtained on beef broth, in the form of a slightly flocculent deposit compared to gold dust. The bacilli were 3 to 4μ in length and showed the same polar staining as in the direct smears. No chains were seen. Upon agar the colonies developed very slowly, and were never larger than a pin's point. The bacilli grew on milk without producing acid or precipitating the casein. Intravenous inoculations into animals produced no definite reaction, and the animals recovered; slight swelling of the inoculated joints was observed in two instances which, however, cleared up. Both Bannatyne[16] and Schüller's cases were ones in which no bony or cartilaginous changes were present.

Kroh,[17] in his paper on Experimentelle Arthritis Deformans, gives an account of a number of cases of arthritis deformans which were produced experimentally in animals (rabbits). The method adopted was the resection of a portion of the joint, leaving the joint itself unaffected by septic processes, but partially out of action, due to the removal either of portions of the condyles or other anatomical parts of the knee-joints. No suppuration followed the small operation, but skiagrams taken at intervals after the operation showed a progressive change had taken place in the joints, causing hypertrophy of the remaining articular surfaces and the bony tissues supporting them, and producing a certain amount of swelling and deformity of the external portion of the joint.

Poynton and Paine,[18] Ainley Walker and Beaton,[19] and Beattie made cultures from cases of acute rheumatism. Poynton and Paine described a *streptococcus rheumaticus* found in the lesions of rheumatic fever, and which, when inoculated into animals, produced infective endocarditis, but they say they have never personally found the occurrence of this coccus in the joints of human beings. Beattie gives the result of cultures made from a case of acute rheumatic fever, which died six days after admission to the Royal

[8] Proceedings of the Royal Medical and Chirurgical Society, Third Series, vol. xi., p. 47.
[9] THE LANCET, March 12th, 1910, p. 712.
[10] Osteo-arthritis, 1889.
[11] American Journal of the Medical Sciences, 1905, July–December, New Series, vol. cxxx.
[12] Severest Anæmias, &c.
[13] The Clinical Journal, vol. xxxvi., 1910, p. 289.
[14] Verhandlungen der Deutschen Gesellschaft für Chirurgie, 1892; Berliner Klinische Wochenschrift, Sept. 4th, 1893; American Journal of the Medical Sciences, December, 1906; Verhandlungen des Congresses für Innere Medicin, Berlin, 1897.
[15] THE LANCET, April 25th, 1896, p. 1120.
[16] Ibid.
[17] Deutsche Zeitschrift für Chirurgie, Leipzig, 1909, vol xcix., p. 425.
[18] THE LANCET, Sept. 22nd and 29th, 1900, pp. 861 and 932.
[19] Brit. Med. Jour., 1903, vol. i., p. 237.

DESCRIPTION OF ILLUSTRATIONS.

FIG. 1.—X ray photograph showing loss of alveolus; the dotted line shows the normal alveolar line.

FIG. 2.—Forty-eight hours' egg agar culture streptobacillus malæ. × 1000. This photograph shows the involution forms; one is situated at the end of a chain, bacillary and coccal forms.

FIG. 3.—Streptobacillus malæ, 24 hours' agar culture, showing bacillary form.

FIG. 4.—Four days' agar culture of streptobacillus malæ, showing the degeneration into chains of bacilli and a large irregular involution form in the centre of the field.

FIG. 5.—Forty-eight hours' old colony of streptobacillus malæ on agar. × 3.

FIG. 6.—Right and left knee-joints of a rabbit inoculated in May, 1910, pure culture of streptobacillus. The photograph was taken from the back of the joint, the animal lying on its face. It will be seen that the right knee, the head of the tibia, shows alteration in the outline of the cartilage, some erosion of the lower end of the femur on the left-hand side, and the whole of the upper part of the head of the tibia shows signs of thickening. Comparing the outline of the cartilage of the sound limb on the opposite side the change can easily be seen.

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

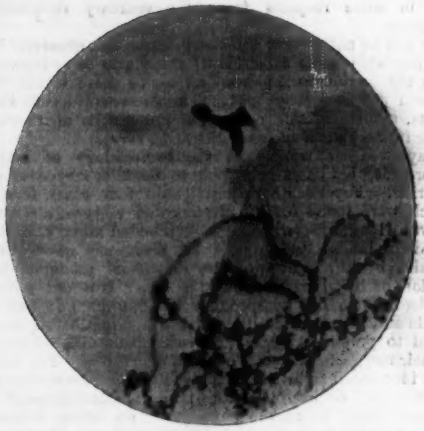
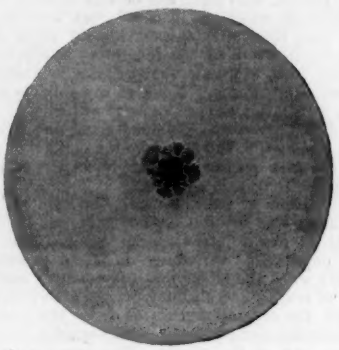


FIG. 6

FIG. 5.



Infirmary, Edinburgh. Subcultures of the organism obtained from the joints of the case were inoculated into animals intravenously, the amount used being two whole agar tubes. The organism was recovered in pure culture from the tissues of the animals afterwards, the injections having produced arthritic changes in four days. Two animals were inoculated in the knee-joints, producing definite arthritis of an acute type which gradually subsided but never disappeared, the animals ultimately regaining their normal health. No visceral lesions were found at the necropsy, but some thickening and infiltration remained round the joints. Cultivations from the fluid and from the cartilaginous surfaces were sterile. For the control, streptococci obtained from the vegetation in a case of malignant endocarditis were inoculated into the knee-joints of two rabbits. The rabbits died from streptococcal septicæmia with no trace of arthritic changes.

In 1903 Beaton and Ainley Walker described the cultural characters of an organism, a *streptococcus*, found in acute rheumatism. This was also found in cases of acute rheumatism, chorea, and endocarditis. They considered it similar to that found by Paine and Poynton, and Beattie. Large doses of the organism produced death within 40 hours in rabbits, six or more agar cultures being used. Moderate doses caused effusion of the joints and tendon sheaths, and death up to as late as three weeks, whilst small doses of the organism obtained from rabbits dead from infection with the streptococcus produced polyarthritis in animals (rabbits).

In 1907 Walker[20] again returns to the subject, and comes to the conclusion that the organism is a streptococcus differing in some respects from the ordinary streptococcus pyogenes.

It will be noted that the last three or four observers when dealing with acute infection of rheumatic fever type found that the organisms produced an acute polyarthritis which cleared up practically without a permanent lesion in the joints, similar in this respect to the lesions of rheumatic fever in the human subject.

Fayerweather worked at the bacteriology of arthritis deformans, his cases belonging to Schüller's type of polyarthritis. Fayerweather investigated four cases, in all of which were found *bacilli*, pleomorphic in type, alternating between long rods with slightly rounded ends, and diplococcal or lanceolate forms, which ultimately grew out into definite bacilli. Two of the organisms produced liquefaction of blood serum, but the other two did not. Of the two which did not produce liquefaction, one was non-motile and the other motile, and the non-motile one was not found to produce spores. The organisms differed slightly in their morphological and cultural characters. Ten rabbits were inoculated from the cultures, either intravenously, subcutaneously, or into the knee-joints. Subcutaneous and intraperitoneal inoculation produced no effect whatever. Three rabbits were inoculated with cultures of the first organism, a bacillus which produced some slight changes when inoculated into the knee-joints, whereas the third organism, a diplococcal form, produced a uniform thickening of the synovial capsule. No changes were seen in the bones, and no muscle wasting, and the animal was apparently quite normal.

A point of some importance in Fayerweather's work is that although the organisms produced no effect when inoculated subcutaneously or intravenously, in several instances change did occur in the joint, the synovial fringes being the chief structure affected.

The bacteriological findings in articular rheumatism may be divided into two series, the one *acute*—in which Poynton and Paine, Ainley Walker and Beaton, and Beattie all agree in finding *streptococci*; and *chronic* in which Schüller, Bannatyne, and Fayerweather found organisms of *bacillary types*, Schüller and Fayerweather both having produced lesions of the joints of rabbits by inoculation with cultures of the isolated bacilli.

One other observer remains to be cited—namely, Painter[21]—who treated nine cases of rheumatoid arthritis with vaccines prepared from the organism described by Fayerweather and claimed by Schüller to be identical with the one he first described. Unfortunately, no reference is made to which of Fayerweather's organisms was used. The opsonic index to the organism was low in every case tested, but a stock, and not an autogenous, vaccine was used. No improvement was observed in any of the cases treated, although a definite exacerbation of the local joint symptoms followed the injection of the vaccine in all the cases.

With the foregoing survey of the subject, I now turn to my own researches on the

ESPECIAL RELATION OF RAREFYING ALVEOLAR OSTEITIS TO ARTHRITIS DEFORMANS.

The amount of destruction of the bony tissues in the jaw is often out of all proportion to the severity, or apparent severity, of the infection, and even when pus is found welling up from the gum sockets one cannot fail to be surprised at the amount of deep infection the bone has sustained.

The following X ray photographs taken for me by my friend Mr. Reid exhibit the loss of tissue and rarefaction particularly well. [A series of X ray photographs of the jaw were shown illustrating this point.]

Fig. 1 shows in the lower jaw the extreme destruction which may take place; not only the alveolus has been lost, but a distinct cavity has been formed in the body of the bone reaching downwards into the inferior dental canal. The bicuspid is also deeply infected. In the upper jaw some attempt has been made at repair. The photographs are merely examples of a large number which might be adduced to show the ravages that take place in the hard tissues of the jaw under the influence of chronic suppurative lesions. It must be noted also that in many cases there was little pus to be found. In Case 3 particularly it was only with the greatest difficulty and even on microscopical examination that definite pus was to be demonstrated. The teeth themselves were not loose, but of course gave definite evidence on physical examination of loss of bony attachment.

The peculiar interest of these photographs is the presence of rarefaction, together with sclerosis. Such a condition in many ways is comparable to arthritis deformans, and was the starting-point of my inquiry as to the possibility of the production of experimental arthritis deformans in animals by the use of the organisms, which evidently possessed a peculiar predilection for destruction of bony tissues.

In the first stage of my experiments I attempted to reproduce disease of the joints by the intravenous inoculation of organisms isolated from such cases as the ones shown in the X ray photographs. To begin with, the pus itself was used for inoculation into rabbits intraperitoneally, subcutaneously, and intravenously. Only a few of these experiments are given in the table of animal experiments, as in all instances in which such inoculation was performed no inflammatory reaction was produced in the joints. Localised suppuration indeed was formed in many instances, and in not a few cases the animals died sometimes from toxæmia, sometimes from generalised infection. Attempts were therefore made to determine which of the horde of bacteria in the pus were the infecting agents. Resource was had to agglutination, the opsonic and phagocyte index, estimations both before and after massage of the affected parts, and to direct animal experiments. A number of organisms were isolated, certain of which undoubtedly produced local suppuration when inoculated subcutaneously, and it was thought that perhaps these were the most likely to give positive results. The method described by Beattie was made use of, animals were inoculated intravenously with cultures of the organisms, and the animals afterwards exposed to cold. Beattie, who made use of this method, found that certain animals which he had injected with streptococci obtained from rheumatic cases exhibited signs of arthritis when the temperature of the laboratory in which they were housed went down to freezing-point during temporary damage to the heating apparatus. None of my animals exposed to cold after inoculation showed signs of arthritis.

Most of the organisms obtained from the alveolar processes are non-motile, and therefore the method of agglutination did not give particularly satisfactory results, and was abandoned.

The estimation of the opsonic index gave rather better results, but it was found that not only one organism, but often four or five different species isolated from the gum margins underwent variations in their opsonic index, particularly when the blood was taken before and after the operation of scaling and cleaning out the gum pockets.

Amongst the organisms isolated from the gum margin one in particular seemed to give more variation in its opsonic index than any of the others. This organism was at first

[20] Brit. Med. Jour., May 25th, 1907, p. 1233.
[21] Boston Surgical and Medical Journal, Nov. 7th, 1907.

regarded as a Gram-negative streptococcus, but as Gram-negative streptococci are exceedingly rare a good deal of attention was given to its morphology. It was found on careful examination that the organism in question differed very much in its general morphology, and in a certain number of other particulars, from the ordinary streptococcus of the mouth.

It is true that streptococcal forms exist in many instances and, as will be seen in Fig. 2, a fairly well-marked streptococcal form is seen, but with a tendency to elongation of the individual elements. Not only this, but there is definite irregular staining, giving the suggestion of polar-staining bacilli. This polar staining is much better demonstrated with Löffler's blue. It is, of course, known that streptococci when grown for any length of time in the laboratory have a tendency to form bacillary types; and it is also well known, as pointed out by von Lingelsheim in Kolle and Wassermann's "Handbuch der Pathogenen Microorganismen," that alternations of bacillary and coccal forms are not uncommon in streptococcal chains giving the well-known appearance of a Morse alphabet. Further, when growing badly or on unsuitable media, and particularly on potato, the streptococcus rapidly involutes and produces a variety of irregular involution forms, so that the difficulty of distinguishing the streptobacillus from the streptococcus is very great. Nevertheless, after a considerable amount of investigation and the staining of a large number of films in various ways I have finally come to the conclusion that the organism which I am describing is a streptobacillus. Its closest morphological relation, as far as I can discover, is the streptobacillus of ulcus molle described by Ducrey, and the drawings given in Kolle and Wassermann's "Handbuch," p. 434, and particularly p. 429, in which the involution forms are given, are in almost every particular identical with the morphology of this organism.

MORPHOLOGY.

When growing freely the organism is like Ducrey's bacillus, a definite streptobacillus, but in colonies taken direct from the plates on first plating a diplobacillary form is common. (Fig. 3[22]). At first sight these diplobacilli closely resemble diplococci, but if care is exercised, particularly in staining by Löffler's methylene blue, it will be seen that the organisms are in reality small diplobacilli with well-marked polar staining. Young cultures (12 hours) stain by Gram's method, but the organism very rapidly loses the power of Gram-staining and except for the larger involution forms and for here and there scattered granules in individual organisms, decolourisation takes place; in fact, this peculiarity first led me to regard the organism as Gram-negative, but the question of Gram-staining is entirely one of the age of the culture. In the older cultures, and even in some of the younger cultures where the organism is not growing freely, there are certain curious forms which may or may not be regarded as involution forms, and they may be divided into three types: 1. Large, oval, swollen forms, 2 to 3μ in width, and showing a marked transverse striation when stained with Löffler's blue, the ends frequently pointed, but may be rounded. 2. Large coccal forms, 2 and even 3μ in diameter, irregular in shape and associated in clusters. (Fig. 4.) 3. Oval, elongated, and shuttle-shaped forms occurring frequently in the length of the chain, taking the stain for the most part deeply. At times these pointed swollen forms are seen at the termination of a thread, and they may exhibit transverse striation. (See Fig. 2.)

The various photographs show the pleomorphism that may be met with. Fig. 3 gives very frankly a diplobacillary form which is common in freshly isolated cultivations. Fig. 4 gives the streptobacillary form, showing, amongst other characters, the tendency to swollen elements in the thread, large swollen and irregular involution forms. In Fig. 4 particularly one large involution form is seen in the centre of the field. In the centre of the field of Fig. 2 a large irregularly stained form is seen at the end of one of the threads. Figs. 3, 4, 5, and 6 are from the same cultivations taken at different days. The organism may, I think, with propriety be termed pleomorphic, but there are other characters than the pleomorphism which tend to divide it from the streptococci.

[22] This name suggested for the organism as identifying it with the jaw lesions, from Lat. mala—the jaw bone.

CULTURAL CHARACTERS.

Fig. 5 is a 48-hours old colony of the organism on agar, and gives the typical form of this organism. It will be seen at once that it differs from the ordinary streptococcal colonies, which are regular, hyaline, and faintly granular. It may, perhaps, bear some sort of resemblance to the colonies of the pneumococcus, but the organism itself in no way resembles Fraenkel's organism. The organism is a facultative anaerobe, and grows best of all in deep stab cultures on agar. Seemingly it requires a small percentage of oxygen present as it grows much better in the depths of a glucose formate stab than it does on a glucose formate streak in an atmosphere of hydrogen. The reaction of the medium is another important factor. No growth takes place at all on media + 10 or neutral. + 3 is the optimum reaction. Nutrose and ascetic agars both give fair development, but by no means as good a growth as agar made with egg albumin. On broth little or no growth is seen; generally a small quantity of precipitate collects at the bottom of the tube, but no flakes are seen down the sides of the tube, and general turbidity of the medium rarely takes place, neither is any pellicle formed.

I find that notwithstanding considerable care the organism dies out with provoking rapidity, and that unless constant subcultures are made on alkaline agar the cultures die out in about a week's time. They die out more rapidly at the temperature of the room than they do at blood heat; in fact, I find from experience that a week's residence at 15° C. almost invariably results in the death of the organism. The thermal death-point is 52° C. for half an hour. The organism in many respects resembles the streptococci in its fermentation of carbohydrates, as will be seen on reference to Tables I. and II. of the cultural characteristics of a number of organisms isolated. There appears to be no definite regularity in the carbohydrate fermentation, with the exception of the inability to ferment caffeine and manitol. Of the carbohydrates tested, salicin and inulin are less frequently fermented than sucrose; the organism always ferments glucose, only a few races do not ferment lactose. Litmus milk is rendered acid, and in the majority of cases coagulated. No visible growth occurs on potato at 20° C., but at blood heat a development may occur on potato producing a slight shiny, whitish appearance. No indol is produced, no sulphuretted hydrogen, and no reduction of nitrates to nitrites, there is no chromogenesis, and the organism grows on blood serum poorly and does not produce any liquefaction of the medium. There is no alteration in neutral red broth, aerobically or anaerobically, in four days. The growth on gelatin is feeble and fails generally. In agar cultivations the growth rarely takes the form of a definite streak, but almost invariably discrete colonies appear over the surface of the medium, and on egg albumin agar may develop to two or even three millimetres in diameter. This medium I find the most suitable for the isolation of the organism. The colonies have a curious pearly lustre when viewed with transmitted light both on agar and egg agar. The growth on agar is generally well marked in the condensation water, where a thickish nummular precipitate makes its appearance. On the surface of the medium, however, considerable variations exist in the cultural appearances, some of the cultures closely resembling streptococci. When the culture is removed for examination with the spatula the mass is frequently found to be of a dry, flaky consistency, and in making vaccines much difficulty is experienced owing to the tenacious way in which the colonies cling together; prolonged shaking in an electric shaker is necessary to produce an efficient emulsion.

Two other bacillary types were selected for examination; these showed a good deal of opsonic index variation. The cultural characters of one group appear in Table I. of cultures inoculated, as these three organisms were used for inoculation, and produced slight, but definite, joint swellings when inoculated into rabbits. Two other types of organisms were also tested by animal inoculation—namely, the Gram-negative cocci of the mouth, belonging to the group *Micrococcus catarrhalis*, and the *Micrococcus citreus granulatus* of Freund, but with negative results.

INOCULATION EXPERIMENTS.

The intravenous, subcutaneous, and peritoneal inoculations into rabbits of the streptobacilli or other organisms

produced no effect or symptoms of arthritis in rabbits (see Table III.). At the suggestion of Mr. Clement Lucas I proceeded to the direct joint inoculation, with the result that symptoms indistinguishable from arthritis deformans have been established in 18 rabbits. The organisms which have produced this joint change have in 15 instances been the streptobacillus of the type the cultural characters of which are given in Table I., but differing from one another in certain particulars with regard to their carbohydrate fermentation and their growth on litmus milk (see Table I.); but both these media are ones in which organisms exhibit peculiarities not sufficient to differentiate them into definite species. In three rabbits a slight amount of joint change has resulted from the inoculation of the organisms given first in the table of cultural characteristics (Table I.), but in no case has the swelling or effect upon a joint been so marked in degree nor so definite as with the streptobacilli.

as the inoculation. Distinct wasting of the extensor muscles was also seen, and the joint became slightly flexed when the animal was at rest. In a number of other instances animals inoculated later than this one, particularly in three animals which were inoculated in January of this year, semi-flexion of the inoculated joint has already occurred.

Mr. Reid kindly obtained X ray photographs of a number of these animals for me, and I wish to tender him my sincere thanks for the trouble which amongst other things entailed transporting much apparatus to the laboratory for the purpose of taking the photographs of these experimental animals.

Fig. 6 shows the antero-posterior view of the right and left knees of the arthritic rabbit. The head of the tibia and the lower end of the femur on the outer side both show alterations in the cartilage and commencing destruction of the articular surfaces of the joint, but the photographs, of

TABLE I.—*Cultural Characters of Organisms Inoculated.*

—	No.	Staining.		Glucose.	Lactose.	Sucrose.	Inulin.	Salicin.	Caffeine.	Manitol	Indol.	Nitrite.	Neutral red.	Litmus milk.		Broth.			Gelatin stab.	Potato.
		Gram.	C. M. B.											Acid.	Clot.	Precipitate.	Pellicle.	Turbidity.		
1	562B	—	Red dots.	—	—	—	—	—	—	—	—	—	—	—	—	+	+	+	Surface lobulate, umbonate, no liq.	Raised yellow.
2	581B	—	,,	—	—	—	—	—	—	—	—	—	—	—	—	+	—	+	,,	,,
3	682A	—	,,	—	—	—	—	—	—	—	—	—	—	—	—	+	—	+	,,	,,
4	729B	+	Irregular.	A	A	A	—	—	—	—	—	—	—	+	+	—	—	—	Filiform, no liq.	No growth.
5	745A	+	,,	A	A	A	—	—	—	—	—	—	—	—	—	±	—	—	,,	,,
6	734C	+	,,	A	A	A	—	—	—	—	—	—	—	+	+	±	—	—	,,	,,
7	787A	+	,,	A	A	A	A	—	—	—	—	—	—	+	+	±	—	—	,,	,,
8	656C	+	,,	A	A	A	A	A	—	—	—	—	—	+	+	—	+	+	,,	,,
9	615A	+	,,	A	—	A	—	A	—	—	—	—	—	+	—	±	—	—	,,	,,
10	432C	+	,,	A	A	—	—	—	—	—	—	—	—	—	—	±	—	—	,,	,,
11	692B	+	,,	A	A	—	A	A	—	—	—	—	—	+	+	±	—	—	,,	,,
12	669C	+	,,	A	A	A	—	A	—	—	—	—	—	+	+	—	—	+	,,	,,
13	739A	+	,,	A	A	A				—	—	—	—	+	+	+	—		,,	,,
14	792A	+	,,	A	A	—	A			—	—	—	—	+	—	+	—	—	,,	,,
15	793B	+	,,	A	A	—	—	—	—	—	—	—	—	+	—	+	—	—	No growth.	,,
16	437B	+	,,	A	A	—	A	·	·	—	—	—	—	—	—	±	—	—	,,	,,
17	614C	+	,,	A	A	A	—	—	—	—	—	—	—	+	—	+	—	—	,,	,,
18	794D	+	,,	A	A	—	—	—	—	—	—	—	—	+	+	—	—	—	,,	,,
19	775C	+	,,	A	A	A	—	A	—	—	—	—	—	+	+	+	—	—	,,	,,
20	679B	+	,,	A	A	A	—	A	—	—	—	—	—	+	—	+	—	—	,,	,,
21	670D	+	,,	A	A	—	—	—	—	—	—	—	—	+	+	+	—	—	,,	,,
22	635B	+	,,	A	A	—	—	—	—	—	—	—	—	+	+	—	—	+	Filiform.	,,
23	637B	—	Red dots.	A	—	A	—	—	—	—	+	+	+	—Alk.	+	+	+	+	Nail growth.	White, moist.
24	636B	+	Irregular.	A	A	A	—	—	—	—	—	—	—	+	+	—	+	—	Filiform.	No growth.

MORPHOLOGY { A—Nos. 1-3 & 23. Bacilli irregular and diplo-, faintly staining with ordinary stains; red granules in three-day cultures with methylene blue.
B—Nos. 4-22 & 24. Bacilli, oval-pointed and spindle-shaped, coccal forms common, diplo- or strepto-bacilli, large, irregular, and swollen involution forms, these taking Gram's stain darkly, other forms often decolourised.

COLONIES { A { Microscopically: Undulate or entire, marmorate, coarsely granular.
Macroscopically: Round medium, opalescent, opaque, raised, moist.
B { Microscopically: Lacerate or lobate, sometimes lobulate, hyaline with grumous centre, or with irregular central darker area.
Macroscopically: Transparent and translucent, with opalescent sheen, slightly irregular or undulate, occasionally with central point.

C. M. B. = Carbolic methylene blue. A = Acid reaction. + = Complete reaction. ± = Slow and feeble reaction. — = No reaction.

In Table III. I have summarised as far as possible the inoculation experiments of 33 animals, which have been injected with cultures of the organisms I have been discussing. Case 34, Rabbit 10, was inoculated in May, 1910, with an emulsion of 0·5 c.c. of a 24 hours' culture of a streptobacillus (432 C). This organism was a typical variety of the streptobacillus, showing the curious shuttle-shaped involution forms and the long streptobacillary forms. On May 26th there was well-marked thickening of the capsule with some creaking in the joint, which was swollen, but not tender nor greatly thickened. The knee-joint progressively increased in size, and on Jan. 13th, 1911, there appeared to be some slight thickening of the knee-joint on the opposite side, and at the same time there was also to be felt a slight thickening of the ankle-joint on the same side course, do not show the alterations in the synovial structures. The joint itself is typically that of arthritis deformans, the photograph being taken nine months after inoculation, only one injection having been made. The alteration in the head of the tibia and the thinning of the tuberosity are definitely shown. There appears also from the photograph to be some sclerosis in the head of the tibia and the lower end of the femur, recalling to some extent the rarefaction associated with sclerosis shown in the earlier photographs of the local disease of the jaw. A small foreign body is to be seen on the outer side of the joint and to-day there appears to be the commencement of osteophytic nodules around the margin of the head of the tibia.

Another rabbit was inoculated on the same day of May, 1910, but with a culture of a streptobacillus obtained from

another case. Well-marked swelling occurred on the outer side of the joint at the end of a month, and in four months' time the right knee was still slightly swollen. On Dec. 5th the animal was inoculated again, this time with a whole agar culture from another case exhibiting rheumatoid symptoms, but in this instance in the ear vein and not locally. No increase of swelling took place in the knee-joint; in fact, some improvement occurred for a short time. On Jan. 25th the animal was reinoculated on the outer side of the same joint with 1 c.c. of an agar emulsion in 1 c.c. sterile saline, care being taken that no fluid went direct into the cavity of the joint. The inoculation was followed by considerably increased swelling of the joint, which by Feb. 20th was much thickened, so much so that the animal was unable to extend the leg at the knee, and the knee-joint was held flexed. On Feb. 13th a skiagraph was taken by Mr. Reid, and very little change is to be seen in the skiagram notwithstanding the fact that well-marked thickening of the synovial membrane and the capsule were to be felt. The dissection of this joint and the uninoculated joint on the other side of the body are on the table, and show the thickened capsule and swollen synovial fringes as well as commencing destruction of the joint with bony and cartilaginous changes. The appearance of the skiagraph suggests some alteration in the right knee-joint, but very much less than in the other rabbit. These animals were inoculated from cases in which arthritis deformans was a definite symptom, but I have found that the streptobacillus is by no means confined to such mouths as have rheumatoid arthritis.

Rabbits Nos. 15 and 30 are two instances of knee-joint inoculations, Rabbit No. 45 of intracapsular inoculations, Rabbit Nos. 47 and 49 of extracapsular inoculation with 0·5 c.c. of saline emulsion of the streptobacillus obtained from persons who were apparently in normal health, but who had rarefying osteitis of the jaw.[23] It will be seen that these animals exhibit well-marked swelling and deformity of the right knee-joints. These animals have received only one inoculation, and Rabbit No. 47 was inoculated with a culture, photographs of which I have shown on the screen.

CASES.

In going over my records of cases of diseases of the mouth I find that in the last 263 uncomplicated cases of varying degrees of infective processes of the alveolus, excluding all cases of growth and such cases as had complications, i.e., as antral disease and all other similar infections, 49 gave a definite history of rheumatic symptoms. These cases were divisible into three main groups, but of course shaded imperceptibly one into the other.

TABLE II.—*Cultural Characters of Streptobacillus from Various Sources.*

No.	Morphology.	Source.	Stain: Gram.	Spores.	Involution forms.	Fermentation tests. Glucose.	Lactose.	Sucrose.	Inulin.	Salicin.	Caffeine.	Mannitol.	Neutral red.	Indiol.	Nitrite.	SH_2.	Litmus milk. Acid.	Clot.	Broth. Precipitate.	Pellicle.	Turbidity.	Potato.	Gelatin stab.	Agar streak.
302C	Streptobacilli.	Mouth inflammation.	+	—	Present 48 hours.	A	A	A	A	A	—	—	—	—	—	—	—	—	—	—	—	No growth.	Filiform, no liq.	Bluish iridescent colonies.
307A	,,	Pus, mouth.	+	—	,,	A	A	A	—	A	—	—	—	—	—	—	—	—	+	—	—	,,	,,	Lobulate; large (2 mm.), bluish colonies.
654B	Oval bacilli, short.	,,	+	—	,,	A	A	A	—	A	—	—	—	—	—	—	—	—	+	—	—	,,	,,	Flat, lobulate colonies.
125B	Streptobacilli.	Alveolar osteitis.	+	—	,,	A	A	A			—	—	—	—	—	—	+	+	+	—	±	,,	Filiform band.	Flat, bluish, lobulate.
167D	,,	Alveolar osteitis, pus.	+	—	,,	A	A	A			—	—	—	—	—	—	+	—	+	—	—	,,	No growth.	Flat, dry (crumbly), lobulate.
237B	,,	Pus, mouth.	+	—	,,	A	A	A	A	—	—	—	—	—	—	—	+	+	+	—	—	,,	,,	Flat colonies.
273C	,,	,,	+	—	,,	A	—	—	A	A	—	—	—	—	—	—	+	+	+	—	—	,,	,,	—
469D	,,	,,	+	—	,,	A	A	A	A			—	—	—	—	—	+	—	+	—	—	,,	Filiform.	Grey, lobulate; centre grumose.
454A	,,	,,	+	—	,,	A	A	—	—			—	—	—	—	—	+	—	—	—	—	,,	Flocculent.	Grey lobulate; flat; dry.
496A	,,	Pus, gums.	+	—	,,	A	A	A	—			A	—	—	—	—	+	+	+	—	—	,,	Filiform.	Marmorate gyrose; large.
506A	,,	Pus, alveolus.	+	—	,,	A	A	A	—			—	—	—	—	—	+	+	—	—	—	,,	,,	Lobulate, medium.
519B	,,	Pus, jaw abscess.	+	—	,,	A	A	A	—			—	—	—	—	—	+	+	+	—	±	,,	,,	,,
581C	,,	,,	+	—	,,	A	A	A	—			—	—	—	—	—	+	+	+	—	—	,,	Discrete colonies.	,,
89A	Streptobacilli, oval, chains.	Pus, gums.	+	—	,,	A	A	—	—			—	—	—	—	—	+	+	+	—	+	,,	Filiform.	,,
103C	Streptobacilli.	P , antrum.	+	—	,,	A	A	—	—			—	—	—	—	—	+	+	+	—	—	,,	No growth.	,,
373C	Oval bacilli, chains.	Gum margin.	+	—	,,	A	A	—	—	—	—	—	—	—	—	—	—	—	+	—	—	,,	,,	,,
408C	,,	Throat.	+	—	Coccal.	A	A	—	—	—	—	—	—	—	—	—	+	—	—	—	—	,,	,,	Lobulate, dry.
413	,,	Gums.	+	—	Coccal and large.	A	A	—	—	—	—	—	—	—	—	—	+	—	—	—	—	,,	,,	Grey, flocculent, small.
418	Streptobacilli.	Root extracted tooth.	+	—	,,	A	A	—	—	—	—	—	—	—	—	—	+	—	+	—	—	,,	Filiform.	Transparent, medium.
444C	,,	Rhinitis.	+	—	,,	A	A	A	—	A	—	—	—	—	—	—	+	—	+	—	—	,,	Discrete colonies.	Lobulate, bluish grey.
450A	,,	Jaw abscess.	+	—	,,	A	A	—	—			—	—	—	—	—	+	—	—	—	—	,,	No growth.	Lobulate, medium.
428C	,,	Gums, pus.	+	—	,,	A	A	—	—	—	—	—	—	—	—	—	+	+	+	—	—	,,	,,	Undulate to gyrose, bluish.
588C	Diplobacilli.	Gums, no pus.	+	—	Coccal.	A	A	—	—	—	—	—	—	—	—	—	+	+	+	—	—	,,	Filiform.	Flat, undulate.
618B	Streptobacilli.	Throat abscess.	+	—	,,	A	A	—	—	—	—	—	—	—	—	—	+	—	+	—	+	,,	No growth.	Grey, flat, moist.
635D	Diplobacilli.	Jaw abscess.	+	—	,,	A	A	—	—	—	—	—	—	—	—	—	+	+	—	—	+	,,	,,	Grey, minute, lobulate.
680D	Short bacilli.	Gums, no pus.	+	—	,,	A	A	—	—	—	—	—	—	—	—	—	+	+	—	—	+	,,	,,	Grey, minute, discrete.

A = Acid reaction. + = Complete reaction. ± = Slow and feeble reaction. — = No reaction.

[23] These animals were exhibited at the lecture.

TYPES OF CASES.

Group A.—Definite arthritis of one or more joints, with pain, swelling, limitation of movement, and with or without wasting of one or other muscles in the neighbourhood of the joint. Swelling of tendons or tendon sheaths in the neighbourhood of joint or elsewhere. Muscular pains, diffuse and irregular in distribution and origin. Neuralgia of trigeminal type. Anæmia.

Group B.—No definite arthritis; inflammation, or swelling of tendon sheath or tendon. Diffuse muscular pains, irregular in distribution and origin. Occasional swelling of joints or tendons, clearing up and leaving no objective symptoms. Palpitation, with irregularity of heart action. Tachycardia. Neuralgia, trigeminal type. Sciatic pain not definitely referred to the sciatic nerve, but diffuse and referred. Gastric and intestinal symptoms.

Group C.—Occasional swelling and tenderness in joints or tendons, rapidly clearing up and leaving no objective symptoms. Irregular muscular pains, occasionally associated with stiffness. Tingling, or "pins-and-needles" sensation in extremities. Local asphyxias or other vaso-motor phenomena. Intermittent lumbago. Occasional trigeminal neuralgia.

These three types gave respectively 25, 16, and 8 cases. Of the total number of cases with a history of rheumatic symptoms, 15 were males and 34 females. A brief synopsis of the 49 cases is appended.

TABLE III.—*Inoculation Experiments.*

	No. of case.	Organism.	Animal.	Dose.	Site of inoculation.	Result and notes.
Mouth suppuration, with symptoms of rheumatism.	2	Diplobacillus (2).	Rabbit.	1·0 c.c.	Right knee-joint.	No suppuration; 20 days, globular swelling of joint; 2 months almost disappeared.
	4	Streptobacillus (4).	Mouse.	0·3 c.c.	Subcutaneously.	No suppuration; recovered.
	14	,, (4).	Rabbit.	0·5 c.c.	Right knee-joint.	No suppuration; 2 months, no change in joint.
	16	Streptobacillus.	Mouse.	0·5 c.c.	Subcutaneously.	No suppuration; recovered.
	16A	,,	,,	0·5 c.c.	,,	,, ,,
	17	,, (8).	Rabbit.	0·5 c.c.	Right knee-joint and intravenously.	No suppuration; swelling of knee-joint for 48 hours; recovered.
	21	,, (5).	,,	1·0 c.c.	Right knee-joint.	No suppuration; 2 months later, joint much swollen, tender, crepitus, synovial membrane thickened.
	24	Diplobacillus (3).	,,	1·0 c.c.	,,	7 days, fluid in joint, capsule swollen; 40 days, still some swelling outer side of joint.
	31	Streptobacillus (6).	,,	0·5 c.c.	Right knee-joint and intravenously.	Small external abscess; no fluid in joint in 10 days; recovered.
	32	Streptobacillus (urine) (9).	,,	0·5 c.c.	,,	7 days, much thickening upper end tibia; 6 weeks, general globular thickening of joint.
	34	Streptobacillus (10).	,,	0·5 c.c.	Right knee-joint.	No suppuration; progressive enlargement of joint, much thickened; muscular wasting; bone affected 10 months later (see X ray photo).
	35	,, (11).	,,	1·0 c.c.	Subcutaneously.	Local tissue necrosis; recovered; organism obtained in pure culture, reinoculated; abscess formation; recovered.
	36	,, (13).	,,	2·0 c.c.	,,	Local suppuration, with thick caseous pus; organism recovered 7 days later, pure culture; recovered.
	38	,, (12).	,,	1·0 c.c.	Right knee-joint and intravenously.	3 days, joint swelling; 2 months, persistence of joint swelling and thickening (?); symptoms slight.
	40	,, (1).	,,	1·0 c.c.	,,	3 days, joint swelling; 20 days, globular; 40 days, swelling almost disappeared.
	40A	,, (1).	,,	1·0 c.c.	Intravenously only.	No change; animal recovered.
	44	,, (14).	,,	1·5 c.c.	Right knee-joint and intravenously.	7 days, thickening of joint; 10 weeks, definite thickening of bones, but capsule of joint not affected.
	44A	,, (15).	,,	0·5 c.c.	Right knee-joint, external to joint.	7 days, general swelling of joint with some capsular thickening; 2 months, swelling less but present.
	49	,, (7).	,,	0·75 c.c.	,,	One month, general swelling, no pus formation; joint flexed; synovial membrane and capsule thickened.
Mouth suppuration, with no symptoms of rheumatism.	50	M. citreus granulatus.	,,	0·3 c.c.	Right knee-joint.	No suppuration, no swelling of joint; recovered.
	51	Streptobacillus (16).	,,	0·5 c.c.	Right knee-joint and intravenously.	No suppuration, swelling of joint, and capsular thickening; 10 months later no swelling.
	52	,, (17).	,,	2·0 c.c.	Right knee-joint and intraperitoneally.	No suppuration, swelling of joint and capsular thickening 5 months later.
	53	,, (18).	,,	1·0 c.c.	Right knee-joint external to joint.	20 days, swelling of joint and abscess in calf muscles, pus aspirated, culture sterile.
	54	,, (19).	,,	1·0 c.c.	Right knee-joint.	14 days, swelling and partial fixation of joint.
	55	,,	,,	0·5 c.c.	Intravenously.	No signs of infection; recovered.
	56	,, (20).	,,	1·0 c.c.	,,	,, ,, ,,
	57	,, (21).	,,	1·0 c.c.	,,	,, ,, ,,
	58	,, (22).	,,	1·5 c.c.	Intravenously and subcutaneously.	Local abscess, thick pus; animal recovered; organism obtained from pus.
	59	Pus from mouth.	,,	1·0 c.c.	Subcutaneously.	Two abscesses at site of inoculation, streptobacillus recovered in pure culture; recovered.
	60	Pus from rabbit (59).	,,	1·0 c.c.	,,	No local suppuration, no general infection; recovered.
	61	Bacillus (23).	,,	1·0 c.c.	,,	Acute local necrosis of skin, which sloughed; no swelling or alteration of joints; recovered.
	62	Streptobacillus (24).	,,	0·5 c.c.	Intravenously.	No symptoms produced; animal well 4 months later.
	63	,,	,,	1·0 c.c.	Right knee-joint and intravenously.	1 month, slight capsular thickening, no pus.
Control		Sterile water.	,,	2·0 c.c.	Right knee-joint.	10 weeks, no signs of inflammation or thickening of joint or capsule.

The numbers in parenthesis under the heading "Organism" refer to the numbers of the organism in Table I.

NOTES OF CASES.

Group A.

CASE 1.—Aged 60. Failing health for several years, with recurrent attacks of swelling in mouth. An acute attack diagnosed as food poisoning two years previously. Has had fleeting swellings in various situations, mostly extensor surfaces of hands, and stiffness in shoulders.

Ulnar deflection both hands. Right index, metacarpo-phalangeal joint swollen. Mouth: condition very bad, much loss of tissue, alveolus absorbed and rarefied. Vaccine therapy. Cured.

CASE 2.—Aged 42. Five and a half years previously had a little rheumatism which became subacute; treated at Buxton three months, much better. Following winter more rheumatism, with swelling in joints, knees, arms, and hands, especially the left, very tender at night, cramps, tingling in calf mostly preceding cramps. Treated again at Buxton and Aixe. Confinement next year in Malta; sore tongue during the time at Malta; child also had sore mouth. Teeth extracted before leaving Malta; acute infection following; was stiff, could not move. Acute attack subsided, joints became less stiff. Present condition: right internal head of tibia thickened, knee full of fluid, much creaking, limitation of movement. Left knee freer movement, but creaking in joint. Thickening along patellar tendon, ulnar displacement of both hands. Mouth: thickening of alveolar margins. Pus present in small quantity; interdental rarefaction of bone. Vaccine therapy. Relieved.

CASE 3.—Aged 30. In September, 1909, was going home from business and got wet through. An acute attack of pain and swelling in most of her joints. Was sent to bed ten weeks, and then to Bath, where she was able to walk with two sticks. Was at Bath until Dec. 24th; not progressed at all. On May 11th, 1910, right knee and ankle swollen; knee, thickening of upper and outer margin of head of tibia, painful on pressure; œdema over shin; pain and swelling of right hip; lordosis, unable to walk upstairs without assistance; can just manage to walk on the flat with a stick, which always brings on pain. Mouth: teeth and gums appear normal; slight ulceration at back of upper central incisors. History of occasional sore mouth, loss of bone between premolars in upper jaw. Pus microscopically only. Vaccine therapy. Cured.

CASE 4.—Pain in back and outer side of left thigh for six years. Three years after commencement thickened synovial fringe diagnosed. Well-marked swelling of left knee, pain in certain positions, tender spot outer and lower side of patella. Mouth: desquamative gingivitis, sclerosing osteitis upper jaw, mild in type; much thickening of alveolus. Pus from three teeth. Vaccine therapy. No improvement.

CASE 5.—Six years ago pain and diffuse swelling right knee and right hand and wrist; pain disappeared, leaving stiffness; joints creaked. Present time unable to use right wrist; thickening of tendon sheath of extensor of hand; slight ulnar displacement. Mouth: teeth have been projecting more and more for some three years. Little suppuration, but thickening of alveolus, slight thickening of alveolar margin. Vaccine therapy. No improvement.

CASE 6.—March, 1906. Right knee large swelling. Droitwich in August. By October nearly well. At the end of October swelling recommenced, and in March, 1907, left knee and left shoulder were also considerably swollen with much pain. Both hands became swollen on dorsal surfaces. In June he went to Aix-les-Bains, did not improve, and was worse afterwards. Was treated at home till beginning of 1908, when he was sent to Teneriffe. During the whole of the time he had been taking iodides. At Teneriffe another acute attack, in which all the joints that had been previously affected became very much worse; had constant smell in nose and mouth, and taste of "burning hair." Unable to walk without the assistance of two people, one on either side. In February, 1909, swelling right and left knees, impossible to feel outline of joint; well-marked creaking in both; ulnar deflection both hands, right hand fingers flexed, cannot straighten without acute pain. All tendon sheaths thickened; both shoulder-joints thickened, creaking, very painful on passive movement. Has lost 2 stone in weight since March, 1906, and a stone during the last year. Mouth: full of gold crowns and bridge work, with discharge of pus from almost every socket. Vaccine therapy. Cured.

CASE 7.—Progressive polyarthritis, remissions and exacerbations, the latter with fever. Pain, wasting of muscles. Mouth: all teeth lost, except two, through pyorrhœa. Not treated.

CASE 8.—Age 45. Three years ago acute pain in left shoulder; swollen; three days in bed; recurrence a year later, associated with cardiac attack; treated at Llandudno; in bed for three weeks. Pain recurred at intervals for three years, occasionally appearing in other joints. Latterly associated with pain, hyperæsthesia and occipital neuralgia. Fusiform swelling of middle and ring fingers of both hands. Swelling external malleolus. Mouth: little or no suppuration, thickened alveoli; teeth recently shifting in position without obvious cause. Vaccine therapy. Cured.

CASE 9.—Local asphyxia with coldness, tingling in both feet at night, right foot "goes to sleep." Tingling in fingers; occasionally left hand becomes quite cold for a short time. Pain in both knees intermittent; swelling synovial membrane right knee; tender round internal tuberosity of left tibia. Mouth: some pus, only found microscopically, but composed of fresh polymorphonuclear cells. Has lost most of teeth owing to progressive loosening. Last few years constant recurrence of water blisters on lips. Vaccine therapy. Relieved.

CASE 10.—Aged 54. Six years' history of neuritis in arms and legs, associated with swelling of tendons in hands, stiffness and creaking in left shoulder. Constant lumbago, occipital neuralgia. Fusiform swelling ring finger of left hand. Mouth: has had receding gums for 20 years. Little pus, alveolus thickened, some loss of alveolus in interdental spaces. Vaccine therapy. Cured.

CASE 11.—Swelling of both knees, thickening of synovial membrane, no apparent alteration in joint surfaces, ulnar deflection of one hand. First noticed rheumatic symptoms five years ago; from that date to the present time has been progressively stiff in all the joints, and with muscular pains, generally worse at night. Quite unable to walk now more than a few hundred yards, even then only with excessive fatigue and pain in joints. Appetite bad, has lost weight; considerable depression. Mouth: considerable pus discharge from gums. X ray photograph shows rarefaction and sclerosis. Vaccine therapy. Cured.

CASE 12.—Rheumatoid arthritis diagnosed in both great toes eight years previous to examination. Acute neuritis, swelling, pain, and loss of movement in left shoulder, made worse by electrical treatment. Recurrent trigeminal neuralgia, vasomotor disturbances in fingers. Mouth: bad taste in mouth, gastric fermentation. Pus from the upper jaw, mainly incisor region, four years. Thinning and porosis of alveolus, no thickening. Vaccine therapy. Still under treatment.

CASE 13.—Attacks of acute rheumatism affecting all the joints, necessitating confinement to bed for six weeks. Treated at Woodhall Spa. All joints still creaking three years after attack. Right knee much swollen and thickened synovial membrane, patches of fibrositis in the angle of the scapula, and persistent lumbago, and pain over both sacro-iliac joints, worse at night; hands swollen and a little œdematous, swelling not confined to extensor tendons, but diffuse. Œdema of shins. Mouth: gums œdematous, spongy, bleeding. Right upper central incisor quite loose. Pus. Alveolus upper and lower jaw thickened, sclerosed. Vaccine therapy. Cured.

CASE 14.—Twenty-nine years previously puerperal septicæmia. Nineteen years later gradual development of thickening, pain, swelling, loss of movement in right knee which persisted, becoming progressively worse for the last ten years; one knee 18 inches in circumference, the other 19 inches; crepitations in both. Left wrist-joint swollen, dorsal surfaces, extensor tendons also. Mouth: no pus. Few teeth loose. Osteoporosis. Vaccine therapy. Improved.

CASE 15.—Vaso-motor disturbances with hands becoming white and cold. Rheumatic pain both shoulders. Acute attack affecting both knees, right more than left. Swelling of peri-articular tissue, crepitations in right knee, not in left; right knee remaining slightly swollen, but with little pain. Intestinal intoxication, mucous colitis. Mouth: localised area of purple and œdematous gums, principally upper jaw on left side. Four teeth discharging pus. "Gouty" teeth. Two gold crowns, which were removed, badly fitting; roots found thin and transparent. Vaccine therapy. Relieved.

CASE 16.—On March 7th, 1908, started with pain behind left ear, without obvious cause. Progressive rheumatism affecting the right shoulder and left thigh; several chills and shivering fits, followed by pain in joints, temperature in the evening going up to 100° F. Attack subsided, but the following spring another acute attack, with fever, pains in the head and neck which came on every afternoon and with any change of temperature; unable to move head. Pain in several joints, shoulder stiffness and creaking. Had a specific history, but had been treated for four years. After an X ray examination of the chest it was decided that it was possibly a case of early tubercular disease, and the patient was sent to a sanatorium, where, however, he derived no benefit. He had lost much weight, and was entirely unable to follow his profession. Subsequent history: on examination considerable amount of thickening in left shoulder-joint and in right knee, with recurring pain described as "toothache" in the neck. Hyperæsthesia over all cranial superficial nerves. Mouth: small degree of rarefying osteitis in lower jaw, rather more in upper jaw; a good deal of alveolar thickening. Vaccine therapy. Cured.

CASE 17.—First noticed stiffness in 1908, became gradually worse. No pain except in right arm. In June, 1910, unable to walk. General wasting of muscles, right knee-joint particularly fixed. Hands and feet shrunken, with acute pain in affected muscles subsequently. Worse at night. Mouth: 15 septic roots, swollen and hypertrophied gum around them, no macroscopic pus, small quantity of pus found microscopically. Considerable hypertrophy, thickening of alveolar process in upper jaw. Vaccine therapy. No improvement.

CASE 18.—Pain in both knee-joints, occurring irregularly, and worse at night. Commenced after bad attack of fever, followed by blackwater, in Nigeria. From this time gums bled; constant bad taste in mouth. Latterly pain in left tendo Achillis. Slight œdema of knees, wrists, and shins. Mouth: gums swollen, partially detached from teeth, alveolus bare in places, considerable amount of pus. Vaccine therapy. Cured.

CASE 19.—Has had rheumatic gout for the last six years; has been treated at Bath regularly twice a year. First noticed loosened teeth a year previous to the rheumatoid symptoms. A good deal of swelling and thickening in both knees, crepitations left shoulder, slight ulnar deviation in left hand. Mouth: gums purple, nodular; has acute exacerbations of pain with swelling of alveolus. No pus formation. Considerable rarefaction of alveolus in upper jaw; in lower jaw some thickening. Roots of molar teeth almost denuded of attachment. Vaccine therapy. Relieved.

CASE 20.—Recurrent shivering fits, associated with acute aching in arms and legs; both knees swollen; left hip very painful; considerable limitation of movement. Latterly attacks have been more frequent; has been treated at Bath, Marienbad, Aix, and many other watering-places. Mouth: no suppuration; strongly marked alveolar thickening in upper and lower jaws; gums pale; wasting of os marginum. Vaccine therapy. Not improved.

CASE 21.—Hyperæsthesia and recurrent pain right arm and shoulder; ulnar displacement left hand; thickening of second phalangeal joint, left ring finger. Mouth: much pain in gums; two crowned teeth, both tender. No obvious pus around gum margins. Both crowns removed. Right upper molar large cavity in bone at root; tooth much thinued and periosteum hyperæmic. Thickened and sclerosed alveolus. Vaccine therapy. Cured.

CASE 22.—Swelling and chronic pain sometimes in both knees; creaking on movement; tender on pressure. Crepitations both elbows and shoulder-joints. Frequent rashes on thighs and chest appear and disappear quickly. Tingling and loss of sensation in arms. Mouth: chronic pyorrhœa, many years' duration. Considerable alveolar thickening; much loss of bone in lower jaw.

CASE 23.—Left lower maxilla, thickening and pain following suppuration around lower molar; lower molar removed. Subsequent necrosis, followed by operation. Recurrent swelling and pain; no fluctuation; no pus. Chronic swelling temporo-maxillary joint on same side; thickening of capsule; alteration of movement. Pain worse at night. Six months after suppuration and necrosis of the jaw had acute attack of pain in right knee, which subsided, but left creaking in the joint. Vaccine therapy. Cured.

CASE 24.—Early chronic arthritis, both knees; irregular swellings affecting joints of both hands; fusiform swelling, two fingers of left hand; right index finger extensor tendons swollen, painful; unable to wear rings. Severe left-sided trigeminal neuralgia, with ptosis on same side. Mouth: considerable loosening of majority of teeth; upper centrals very loose. Much pus. Vaccine therapy. Relieved.

CASE 25.—History of gout and rheumatism for several years. Occasional attacks of pain with swelling in the knee-joints; left knee slightly enlarged. Recurrent lumbago and irregular muscular pains. Symptoms of gastro-intestinal infection; acute eczema recurrent. Mouth: gums swollen, turgid, hyperæmic. Mucous membrane covered with white flakes of desquamation. Enlargement of lymphatic glands over submaxilla. Frontal headache. Vaccine therapy. Cured.

Group B.

CASE 26.—Diffuse muscular pains in shoulders and arms, irregular in onset, but leaving stiffness sufficient to prevent playing tennis. Recurrent stiffness and pain in lumbar region. Pain in right gluteal region and referred down sciatic nerve. Sciatic nerve not tender at foramen. Stiffness of calf muscles. Worse at night. Mouth: one-third of teeth lost through caries. Discharge of pus lower incisor

region, and molar region upper and lower right. No hypertrophy of gum. Sclerosis of alveolus, well-marked denudation between several teeth. Vaccine therapy. Cured.

CASE 27.—Diffuse muscular pains in shoulders and back, swelling of extensor tendons of left hand. Stiffness over both knee joints. Complains of recurrent rheumatism. Trigeminal neuralgia. Mouth: all teeth removed two years previously for pyorrhœa. Thickening of lymphatic channels both sides of neck. Slight thickening of lymphatic glands of posterior cervical triangle left side. Vaccine therapy. Cured.

CASE 28.—Suffered from muscular rheumatism for six years. Recurrent neuralgias, mostly trigeminal. Stiffness and pain at back of head, recurrent but with long intervals. No focal spots of neuralgia. At Woodhall Spa six years ago, suffered from rheumatism ever since. Mouth been treated for last ten years for discharge of pus. Considerable bony deficiencies in tooth sockets with rarefaction as well as sclerosis. Vaccine therapy. No improvement.

CASE 29.—Aged 18. History of recurring attacks of fainting from no particular cause. Much acne. Irregular, diffuse, rheumatic pains, often at night, occasionally leaving stiffness of shoulders and unable to take violent exercise after. Last attack had swelling of left hand and radius. Crepitation in right knee. Mouth: discharge of pus from sockets for several years; this despite all attempts at treatment. Five tooth sockets still suppurating. Vaccine therapy. Relieved.

CASE 30.—Pain in right shoulder last three or four years; unable to put on coat comfortably; keeps him awake at night. Suffers from recurrent vaso-motor spasm of feet, with subnormal temperature. Mouth: little pus; thickened alveolus showing much loss, particularly upper jaw. Most teeth extracted, remainder one only loose. Some rarefaction; alveolus mostly thickened and sclerosed. Vaccine therapy. Cured.

CASE 31.—Pain in joints fleeting, not persistent or resulting in changes. Fermentative gastritis. Neurasthenia. Mouth: thickened and sclerosed alveolus, œdema of gums, slight pus formation. Osteoporosis in molar region of upper jaw. Vaccine therapy. Relieved.

CASE 32.—Rheumatic pains in various parts of the body with occasional swellings of joints associated with fever, disappearing after short time and not leaving any joint deformity. Swelling of hands, also disappearing and leaving no thickening. Neuritis. Acute neuralgia, trigeminal, mostly first and second divisions. Rarefying osteitis with sclerosis. Suppuration slight, but definite pus formation. Vaccine therapy. Relieved.

CASE 33.—History of occasional rheumatic pain, diffuse, not very definite. Diffuse, rarefying osteitis of alveolus, left upper jaw; central, lateral, and canine entirely denuded of bone. Much pus formation, several other teeth in upper jaw also loose. Lower gums œdematous; alveolus thickened. During course of treatment for alveolar disease sudden onset of an attack of arthritis in left knee, no fluid in joint, swelling of the internal synovial membrane and capsule, creaking on passive movement, gradually disappearing without leaving deformity of joint.

CASE 34.—Irregular rheumatism generally in shoulders, occasionally in knee-joints, no swelling, and so long as he takes plenty of exercise has no return. Constant fermentative indigestion. Mouth: for three years has had well-marked suppuration along the gum margins. Large quantity of pus now found, a good deal of alveolar infection. Vaccine therapy. Cured.

CASE 35.—Vaso-motor spasm of hands preventing writing, together with tingling and occasional burning sensation in upper arm. Recurrent stiff necks, some fibrositis in deltoids and left angle of scapula, no swelling, no definite articular lesions. Mouth: has lost all molar and bicuspid teeth from pyorrhœa. At the present time lower centrals and upper centrals standing, much coated with deposit. Discharge of pus from inflamed and hypertrophied gums. Vaccine therapy. Relieved.

CASE 36.—Bilateral enlargement of first metatarsals of both feet. Neuritis left arm; anæmic. Good deal of neurasthenia. Mouth: copious discharge of pus, much rarefaction, but with sclerosis in several situations. Vaccine therapy. Relieved.

CASE 37.—Neuritis right hand, preceded by attacks of coldness. Always suffers from rheumatism when exposed to wet. Swelling, pain, and some thickening of left temporo-maxillary articulation. Teeth nearly all loose, for eight years progressing. Pus welling from all sockets. Very great hypertrophy of gums, blue and turgid. Rarefaction of alveolus of lower teeth, so far advanced that hypodermic needle might be passed between roots of lower teeth entirely through the jaw. Vaccine therapy. Cured.

CASE 38.—Slight arthritis of shoulder on left side and left knee. Vaso-moter spasms, particularly affecting face. Acute attack of rheumatic type, followed by anginal attacks and myocarditis. Intestinal indigestion. Mouth: acute paroxysmal pain of individual teeth. Sclerosis. All extracted teeth roots transparent. No suppuration, but extracted teeth highly inflamed periosteum. Vaccine therapy. Cured.

CASE 39.—Patient aged 18 years. Acute pain, temperature 104° F. Pain in all joints, so tender could not be touched. Quite well in a fortnight. For two years had alternations of general rheumatic pains with attacks in feet, hands, shoulders, or knee. Frequently attack in big toe. Harrogate, Marienbad, Buxton. Mouth: much hyperæmia of gum margin, particularly anterior portion of mouth. No pus. Rarefaction of alveolus. Vaccine therapy. Relieved.

CASE 40. Occasional rheumatic pains, no definite joint lesions. Mouth: has lost nearly all teeth from loosening. Has had acute exacerbations with pus formation in mouth after last three confinements. Two children both suffered from rheumatic fever. Vaccine therapy. Relieved.

CASE 41.—Had acute endocarditis when two years and three months old. Five to six months after brother had had similar disease with high temperature and heart infection. First attack corresponded to time his mother was suffering from acute pyorrhœa. Recurrrent attacks, fleeting pain in joints, præcordial pain, breathless. Mouth: present condition gingivitis with marked suppuration around several temporary teeth, mucosa of mouth generally inflamed. Vaccine therapy. Cured.

Group C.

CASE 42.—Patient aged 18 years. Irregular trigeminal neuralgia. Stiffness and pain left temporo-maxillary joint. Muscular cramps, irregular, at night on three occasions. Mouth: diffuse gingivitis with hypertrophy of gum. All teeth much discharge of pus. Trouble commencing after acute attack of measles. Vaccine therapy. Cured.

CASE 43.—Subsequent to an attack of influenza suffered from palpitation and diffuse muscular pains, aching in joints which persisted for six months. Temperature of 101° F. at intervals at night, lasting three or four months. Occasionally swelling and stiffness in hands and feet; right hand goes to sleep at times. Heart ringing first sound, slight roughness. Hæmoglobin 75 per cent. Mouth: has had bad taste in mouth ever since influenza, and has noticed recession, bleeding, and discharge from the gums. Well-marked infection of the alveolus in many situations. Few teeth loose. Vaccine therapy. Relieved.

CASE 44.—Recurrent attacks of sacro-iliac neuralgia, followed by stiffness in lumbar region. No history of generalised rheumatism. Mouth: lower central incisors loose, discharge of pus from upper and lower gums. Rarefaction of bone. Vaccine therapy. Cured.

CASE 45.—Patient aged 50 years. Recurrent attacks of asthma since 35 years of age. Attacks of colitis. Various operations for nasal polypi suppuration. Last four years emphysema, with occasional attacks of bronchitis. Recurrent lumbago. Intestinal indigestion. Occasional swelling of tendons of back of hand. Recurrent stiff neck. Mouth: takes great care. Little or no pus found, but well-marked interstitial deficiencies, thinning of bone, sclerosis of alveolus. Vaccine therapy. Relieved.

CASE 46.—Attacks of unaccountable sleeplessness, with sudden loss of sensation and feeling in one arm. Rheumatism which interferes with his golf. Mouth: suppuration acute left upper canine, most teeth lost through pyorrhœa, much shrinkage of alveolus, except where teeth are standing, where, particularly in the upper jaw, considerable thickening has taken place. Vaccine therapy. Cured.

CASE 47.—Irregular attacks of stiffness and pain in knees and right hip. Dyspepsia, three years' history. Mouth: acute suppuration in mouth. All teeth affected, gums swollen, œdematous, much wasting of alveolus, little or no thickening. Vaccine therapy. Cured.

CASE 48.—History of mild polyarthritis, many years' standing. At times knee-joint becomes swollen and tender; slight thickening right knee, some loss of movement. Mouth: much alveolar thickening, left side of upper jaw being at least twice the normal size. Suppuration around roots of upper molar teeth, much elongated. Rarefaction of bone around teeth. Vaccine therapy. Cured.

CASE 49.—Last three or four years has had irregular attacks of lumbago, with rheumatic pain in shoulders and down right arm. Occasionally swelling of fingers of right hand; no permanent enlargement of joints, but sometimes definite swelling which makes it difficult to wear her rings. Mouth: mouth and gums normal, with exception of right upper bicuspid tooth, which is dead, and from which a chronic sinus has existed for the last six years. Alveolus around this bicuspid tooth is thinned and almost entirely removed. Some deeper infection into the body of the jaw. Antrum not affected.

For the sake of brevity the section dealing with the bacteriology of the mouth is confined to the consideration of those cases in which animal experiments have been made. Animal experiments were made in respect of 17 of the cases: 8 in Group A, Nos 2, 4, 14, 16, 17, 21, 24, and 25; 7 in Group B, Nos. 31, 32, 34, 35, 36, 38, and 40; 2 in Group C, Nos. 44 and 49. In all the 49 cases a bacteriological investigation was made and organisms similar in general characters to those described in Table II. were isolated. In addition to these cases giving a definite history, 12 non-rheumatic cases of rarefying alveolar osteitis were submitted to bacteriological examination, the streptobacillus isolated from them and used for animal experiments. The organisms obtained resembled those from the rheumatoid cases. The two groups of cases are indicated in Table III., cases from 50 onwards being those in which no rheumatic symptoms were observable. The bacteria isolated from the cases which were not suffering from arthritis or other rheumatic symptoms in several instances caused swellings and progressive changes when inoculated into the knee-joints of rabbits. I have also isolated the streptobacillus from cases of posterior rhinitis, chronic pharyngitis, quinsy, and disease of the antrum of Highmore. I have also isolated the streptobacillus from the urine of four cases in which it was present in the mouth. In my last 100 cases of mouth diseases examined bacteriologically of all varieties excepting dental caries I have met with it 65 times.

It will be seen from the notes of many of my cases that a considerable amount of crown and bridge work had been inserted in the unfortunate persons' mouths, and I cannot express too great a horror of that potent predisposing cause of infection of the jaws—namely, the ill-fitting, ill-adjusted, ill-conceived, and pernicious cap crown. To the objector who demurs to this condemnation I would only retort that it is a device which separates the normal gum edge from its attachment to the tooth, that rarely, if ever, fits closely to the contour of its encircled victim, but invariably projects in such a manner that débris of food is trapped under its rim and inevitably promotes ulceration, periosteal infection, and, sooner or later, rarefying osteitis and suppuration.

TREATMENT.

The first suggestion that treatment of the mouth infection might also influence the arthritis was given by a case whose mouth was resplendent with gold crowns, Case No. 6. A bacteriological examination was made, the infecting organisms isolated, and an autogenous vaccine prepared.

Preliminary inoculations were given and all the worst and badly infected teeth removed. The vaccine was then given regularly, first at periods of ten days, then at fortnightly intervals for six months, and after that at intervals of six weeks for a year. The first inoculations were associated with exacerbation of the joint symptoms. The patient made a slow but steady recovery. The left knee-joint, which had undergone some bony change, has remained permanently thickened, particularly the outer margin of the head of the tibia, but the thickening of the tendon sheaths of the hands has disappeared, together with the joint swelling; the patient is able to walk without pain, and has so far recovered the use of his limbs that he was able so long ago as last September to mow his own grass plot. He has gained about 2 stones in weight, and has been able to return to his occupation. Four fresh vaccines were made during the period of treatment; the dose to commence with was 10,000,000, but the later doses were 150,000,000 to 200,000,000, on each occasion being the streptobacillus described above, the organism in this case being Nos. 125B and 237B on the list in Table II. The line of treatment of this case is that adopted as general routine. In nearly all of my early cases distinct increase of the arthritic pain and swelling was caused by the first inoculation; latterly the preliminary dose has been reduced to avoid this exacerbation.

Case No. 16 was another of the earlier cases, but in this instance the organisms were tested on mice, mainly for virulence, no intravenous or other inoculation having been made into rabbits; in fact, it was not until May of last year that I commenced direct inoculation into the knee-joints of animals. It will be seen on reference to this case that the amount of inflammation in the mouth itself was practically *nil*. The patient had, however, lost a number of his teeth, and those which remained showed a small but definite amount of rarefying osteitis in the lower jaw. There was also a considerable amount of alveolar thickening. There were no other obvious sources of infection, although careful search was made of all the orifices, and the bacteria were isolated and tested against the patient's blood. Resource was therefore had to immunisation by means of a vaccine prepared from the patient's mouth. Almost from the first inoculation a diminution took place in the slight degree of fever from which the patient constantly suffered, the temperature generally being raised to 100° at night. The inoculations were carried out regularly and progressive improvement took place. The specific treatment was also continued, as at one time some parietal thickening occurred which was thought to be of specific origin. The patient made a gradual but complete recovery, having lost all stiffness, all neuralgia, and, having regained his normal weight, has been enabled to return to his business; more important still, he is now able to play golf again without difficulty. The two mice inoculated with the patient's organisms recovered without any ill effects.

Case No. 3 was another in which a very slight amount of mouth infection was to be found. She had a history of indigestion, her throat was hyperæmic, there was occasional pain in the mouth and palate, and the latter showed slight ulceration behind the central upper incisors. There was slight but definite infection of the alveolar process, but without very careful examination this could not be detected, as to all appearances the patient's teeth and gums were normal; on careful examination with a thin platinum probe it was found that here and there the gums were detached and distinct loss of alveolar process in the interdental position had occurred. The streptobacillus was isolated from this patient, who received injections at weekly intervals, and latterly at more extended periods. At the first three injections increase of pain and swelling of the affected parts occurred. She was under treatment from May, 1910, to December of the same year. By this time all the swelling in the knee had entirely disappeared, the joint was quite normal, the patient had discarded not only her crutches and her stick, but was able to dance.

Case No. 23 is of interest because it was the only one in the whole series of 49 cases in which there was any suggestion of infection either in or in the neighbourhood of the temporo-maxillary articulation, and in this case the organisms found differed from those obtained from the majority of the cases. The organism from this case belonged to the type given at the head of Table II. in that the organisms produced no fermentation of carbohydrate. The swelling entirely disappeared after eight inoculations and has not returned.

Forty-five out of the 49 cases were treated with autogenous vaccines of the streptobacillus malæ, 21 in Group A, 16 in Group B, and 8 in Group C. Of these cases 23 have been cured, inasmuch as their arthritic symptoms have resolved sufficiently for them to go about their normal avocations; of these, 11 belonged to Group A, 7 to Group B, and 14 to Group C. Four cases in Group A and 1 in Group C refused treatment, and of the remaining cases 8 in Group A are still under treatment, 4 have shown marked improvement, and in 4 so far no improvement appears to have taken place, whilst 2 cases ceased treatment after a couple of months, having been in no way benefited, but in no case was the condition in any way aggravated. In Group B 7 cases are still under treatment and 2 were in no way benefited. In Group C 4 cases have been cured and the remainder are still under treatment.

TABLE IV.

Cases treated.	Results of treatment.			
	Cured.	Relieved.	Still under treatment.	Not improved.
45	23	14	6	4
Group A, 21.	11	7	4	2
Group B, 16.	7	7	2	2
Group C, 8.	5	3	—	—

The routine method of treatment which I have adopted in all these cases has been inoculation with autogenous streptobacillary vaccines, followed by attention to the local mouth infection. Where extraction was deemed necessary, and the question of extraction has generally been decided with the assistance of X ray photographs, preliminary immunisation of two or three doses of vaccine has always been undertaken before the removal of the infected tooth. I am of opinion that harm may result from the free removal of even loose teeth in sufferers from arthritis deformans unless preliminary treatment is adopted, and I have found, as a matter of practice, that increased local swelling and pain does occur in many instances in arthritis deformans after the removal of teeth, and may even follow an ordinary process of scaling tartar-coated teeth.

In conclusion, it must be understood that my contribution to the study of arthritis deformans coincident with alveolar osteitis does not seek to establish a specific organism as the etiological factor in *all* cases of rheumatoid arthritis, infective fibrositis, muscular rheumatism, &c., but that in diseases of the jaws, especially rarefying alveolar osteitis, a streptobacillus is present, pure cultivations of which inoculated into or around the knee-joints of rabbits have produced symptoms similar to and indistinguishable from arthritis deformans; that in such disease of the mouth and jaws the treatment of the disease locally and by means of autogenous vaccine prepared from the streptobacillus has been associated with amelioration and disappearance of the arthritic symptoms in a greater number of instances than can be ascribed to fortuitous coincidence.

A BRIGHTON WORKHOUSE SCHEME. — The Brighton board of guardians at its last meeting agreed in principle to the complete separation of the infirmary inmates from the workhouse inmates, a separation to be effected by the elimination of all the children from the workhouse and accommodating them at Warren Farm School, which is also under the jurisdiction of the guardians. This removal would provide the accommodation needed at that institution for the classification of the sick. The daily average number of inmates of the workhouse is 1350, of which number about 500 are maintained in the infirmary. The nursing staff numbers 40, comprising a superintendent-nurse, a night sister, 10 charge nurses, 11 staff nurses, 15 probationers, and 2 male nurses. The guardians were almost unanimous on the matter, 23 voting for the scheme and only 1 against. The vote was an endorsement of the view taken by the committee which considered the question that "in all probability the time is not far distant when Poor-law infirmaries of the size of that of Brighton will be under separate administration from the workhouse."

ABSTRACT OF

The Lettsomian Lectures

ON

OPERATIONS FOR STONE IN THE MALE BLADDER.

Delivered before the Medical Society of London on Feb. 6th and 20th and March 6th, 1911,

BY WILLIAM F. HASLAM, M.B. BIRM., F.R.C.S. ENG.,

SURGEON TO THE BIRMINGHAM GENERAL HOSPITAL.

LECTURE III.[1]

Delivered on March 6th.

Mr. Haslam said that an attempt was made by Deschamps in 1796 to revive the Marian operation on modified lines by what he termed a "mixed method." This resembled the lateral operation in the external incisions and the Marian in dilatation of the prostate and neck of the bladder, and he says, "who knows but at some future time surgeons may not be tempted to return to this method?" In 1819 Sir Astley Cooper extracted a stone as large as a walnut by this mixed method; in 1830 it was advocated by Dr. Buchanan of Glasgow, and in 1842 it was again brought forward by Dr. Willis. It received the name of "lithectasy" and then was heard of no more. By this time the lateral operation was becoming firmly established, and in 1853 Coulson says: "The lateral operation is now universally adopted, not only in this but in all other countries, and hence we have *primâ facie* reason for concluding that as a general method it is the best." The rectangular staff of Buchanan was by some preferred to the ordinary curved staff as facilitating the opening of the urethra and the passage of the knife through the prostate, but this in no way modified the steps of the lateral operation nor was it at all widely used. The first idea of the bilateral operation appears to have been due to Le Dran, who, in performing the lateral operation, sometimes found his internal incision was not sufficiently free. He therefore divided the right side of the prostate as well as the left. Sir Astley Cooper and others adopted the same practice. These operations, however, resembled the bilateral method only so far as the double incision of the prostate. The bilateral operation as a definite procedure was finally established by Dupuytren in 1824, and was described by William Coulson in his work on lithotrity and lithotomy published in 1853. The quadrilateral method of M. Vidal de Casis was proposed in 1828. The first transverse incision was made as by Dupuytren, and then the prostate was divided in four directions, but the operation was never taken up. In 1824 Aston Key of Guy's Hospital published a short treatise on the section of the prostate gland in lithotomy with a safe and easy method of conducting the operation on the principles of Cheselden. He designed the staff to obviate the dangers attending the use of the gorget, and at the same time to adhere closely to the principles laid down by Cheselden in his second operation. The recto-vesical operation is said to have been performed by the Egyptian lithotomists from time immemorial, and was written about in the sixteenth century by a writer under the assumed name of Vegetius. It was described by Hoffmann in 1779 and by Martin in 1817. M. Sanson brought it before the notice of the profession in France in 1817. Sanson, however, soon gave up this method, and substituted for it the one practised by Vacca. The median operation was to some extent a modification of the Marian. A keen advocate of the median operation in this country was Allarton, who in 1854 published a work dealing with it under the title of "Lithotomy Simplified."

Concerning lithotrity the lecturer said that the occasional passage of a stone by the urethra must have suggested to the careful observer the possibility of dilating the urethra so as to facilitate the passage of a small stone, or to enable one to be seized with a suitable instrument and drawn through the urethra, or of being able to break up a stone, already too large to pass, into small fragments which could be voided with the urine. Indeed, the breaking of a large stone had been practised from time to time for many centuries, when it was found to be impossible to extract it through the incision made in the Celsian operation. The Egyptians practised the removal of small stones by dilating the urethra, and the same method was adopted by the Arabians. In THE LANCET for 1835, in the number for May 2nd, the position is summed up as follows: "So far as our own observations and inquiries have extended, we are inclined to believe that if lithotrity were to be taught generally in the schools, and brought into ordinary use amongst practitioners, the cutting operation for stone would in a few years become obsolete; because the facility with which small stones could be crushed, would leave no large calculi to require the use of the knife." No great advance was made until 1878, when Bigelow of Boston showed that it was possible to break up a stone so completely at one operation that all the fragments could be washed out through a large evacuator. With the establishment of Bigelow's operation surgeons were better enabled to consider the possibility of dealing with larger stones by crushing than was formerly the case. In skilled hands and with suitable instruments the operation is well adapted for almost any stone that may be met with. It is probable that lithotrity will never be so generally adopted in this country as in those where stone is common. There is no doubt that here the suprapubic operation is on the whole preferable. The operation of perineal lithotrity was first performed as a definite procedure by Dolbeau, a French surgeon, in 1862, and some years later was reintroduced by Mr. Reginald Harrison.

In order to ascertain what operations surgeons were performing for vesical calculus in this country certain questions were sent to surgeons attached to the larger hospitals. To the first question, What operation do you usually perform on the removal of a stone before the age of puberty?—there were 221 replies. From an analysis of these figures it is clear that the suprapublic operation is the one usually performed. Seven only refer to lithotrity as the method adopted, without any reference to the size of the stone or other circumstances. The others who perform lithotrity do so only after making choice of such cases as seem suitable, in their opinion, for the operation. The lateral operation as well as the median are still mentioned, though apparently are very seldom performed. To the second question, What operation do you usually perform for the removal of a stone from the male bladder after puberty when there is no evidence of prostatic enlargement?—there were 240 replies. These returns show that surgeons are prepared to consider the advisability of performing lithotrity in the adult more frequently than in boys, but the number of those who practise the suprapubic operation is in excess of those who use lithotrity, and it should be noted that of these a large number reserve it for small stones, doing the suprapubic operation for large ones. The third question, as to the treatment of stone when there is evidence of prostatic enlargement, elicited 224 replies as follows: For the treatment of stone in the presence of an enlarged prostate the suprapubic operation is, from these returns, the method adopted by almost all surgeons, only 16 out of 224 being prepared to discuss the desirability of attempting lithotrity under these conditions. The fourth question dealt with the treatment of the wound in cases of suprapubic lithotomy. There were 230 replies. The chief point of interest in this question is as to suture of the bladder and of the abdominal wall, and whether a drain is used or not. It is evident that there are few surgeons who venture to sew up the bladder and close the abdominal wound without some form of drainage, though there are many who will close the bladder and use a drain to it; while rather more than half the number prefer to use either partial suture or none at all. Such is the condition of practice for stone in this country at the present time, and though it is always uncertain what changes may take place in the future, it does not seem probable that there will be any great alteration in the immediate future. No doubt, under modern conditions, the lateral operation would yield good results so far as the mortality of the operation is concerned, if done by surgeons who had fairly frequent opportunities of performing it. But, in addition to those dangers which might be avoided by a skilled operator, there is the possible injury to the ejaculatory ducts, and consequent sterility, which is

[1] Abstracts of Lectures I. and II. were published in THE LANCET of Feb. 18th (p. 423) and 25th (p. 491), 1911, respectively.

beyond the control of the surgeon. There does not seem to be any real effort at the present time to displace the suprapubic operation by crushing, nor does it seem likely that any great improvement can be made in the details of the former, so that we may fairly regard the mode of treatment of to-day as likely to continue for some time.

THE PRINCIPLES ON WHICH THE TREATMENT OF RESTING CONDITIONS OF THE SKELETON IS BASED.

BY W. ARBUTHNOT LANE, M.S. LOND., F.R.C.S. ENG.,

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IN 1886 I published in the Guy's Hospital Reports[1] a study of the causation of the deformities which develop in young life and attempted to place the treatment of these conditions upon some definite scientific basis. As more than 25 years have elapsed since I wrote that paper, which dealt very fully with the subject, I think it may be of some interest if I consider what changes have taken place in the interval. I purpose quoting from the commencement of that communication to show that the position as regards these deformities does not materially differ now from what it was then:—

> I propose to discuss the several deformities which arise during childhood, and I will attempt to consider more particularly their causation and pathology, for, after we have obtained a thoroughly clear idea of the manner in which such abnormal conditions are produced, and the relative importance of the several factors which may combine to determine their formation, we shall be able to compare the advantages presented by each of the many modes of treatment which have been suggested or practised by different surgeons, and to draw our own conclusions upon their relative merits. I hope to be able to throw some new light upon the manner in which many of these deformities arise, and will attempt to explain their causation upon a more scientific basis than that which is at present described in the works which I have read upon the subject.
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> Anyone who has patiently and thoughtfully plodded through much of the abundant literature on deformities cannot but be struck by the small proportion which the consideration of the causation and pathology of these conditions bears to that of the special form of treatment recommended. Perhaps much of this is due to the fact that to a very considerable extent the treatment of deformities has fallen into the hands of mechanicians, who are not guided in their practice by a very intimate knowledge of the several factors which determine the development and progress of these conditions and of the pathological changes which they present, but they are imbued rather with the idea that each deformity can only be treated by the application of some particular instrument or apparatus. I do not for a moment wish to depreciate the value of instrumental aid or of the assistance which a skilful mechanician can afford us; I wish rather to indicate that there are other factors which we cannot meet solely by the application of mechanical supports, and that in many cases we may, by relying too much upon appliances, aggravate instead of control the condition and progress of the deformity.
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> The tendency of the present day is to specialise and remove the subject of the treatment of deformities from the realm of general surgery rather than to elaborate our knowledge of the causation and pathology of deformities generally, and then to classify these facts under several heads and obtain from them general indications as to our treatment of them. There is also a strong inclination to account for the development of each deformity on some peculiar ground special to itself rather than to suppose that deformities acquired during growing life are due to the same causes modified by secondary circumstances, such as variations in the character of different joints as regards the mode of transmission of superjacent pressure, &c.
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> We find very eminent surgeons of world-wide reputation developing theories as to the mode of causation of the same deformity, which are often so completely contradictory that if one be true the other is necessarily false. Yet each of these surgeons formulates a mechanical treatment based upon his theory, so that, if these treatments bear out the intentions of these surgeons, they must of necessity be also contradictory in their results.
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> In this branch of surgery, more frequently, perhaps, than in any other, the surgical pathologist has but too frequently mistaken the cause for the effect. Surgery differs from medicine in the following important particular. In the former a false hypothesis or theory frequently suggests a course of treatment based upon it, which may not only be not beneficial, but absolutely prejudicial to the patient, while in the latter the treatment carried out is usually quite independent of the almost innumerable theories of causation which are invented about every obscure medical disease. As an instance of this, take the disease diabetes. Therefore, it is of much importance, as regards treatment, that we should obtain as thorough and as complete a knowledge as possible of the factors which determine the development and progress of deformities, and of the influence exerted by each.

The only important thing I have learnt since I wrote that paper is that respiratory incapacity, as I termed it, or, in other words, an oxygenation of the blood sufficiently defective to prevent the individual from leading a vigorous active life, is not, as I believed then, the primary factor, since this defect in oxygenation is itself consequent on intestinal stasis.

By intestinal stasis I mean such a delay of the contents of the intestines in some portion of the gastro-intestinal tract, but more particularly in the large bowel, as allows of the absorption into the circulation of a larger quantity of toxic material than can be dealt with effectually. This delay results from a mechanical alteration in the normal arrangement of the drainage apparatus. In early life it is produced by an abnormal distension of the intestines consequent on too frequent feeding or by the use of articles of an unsuitable nature. Later it is brought about and accentuated by the erect posture of the trunk which is assumed from the time of getting up until going to bed.

Dr. Vaughan and Miss Wheeler have shown[2] that proteids can be split into a poisonous and non-poisonous portion, and that the deleterious component is a respiratory poison. It can produce acute, subacute, or chronic poisoning depending on the manner and rate of its introduction into the body. They also showed that animal albumin is more poisonous than vegetable albumin. It is upon this fact that the advantages of a vegetarian diet depend, while it also throws much light on what is called "dieting" by the physician and which has been arrived at somewhat empirically.

I would also call attention to some elaborate experiments performed by Dr. Turck of Chicago which bear in a very important manner upon intestinal stasis and consequent auto-intoxication. I have discussed this question fully in several papers.[3] The views of the profession have changed very rapidly on the importance of the subject of intestinal auto-intoxication produced by intestinal stasis since the discussion on constipation which took place at the meeting of the British Medical Association in London in July, 1910, which was so ably opened by Dr. J. F. Goodhart. It had become the fashion of the physician to cast ridicule on the influence exerted by intestinal auto-intoxication upon the individual, and that was the attitude of the opener of the debate and of the majority of the physicians who took part in it. Since that discussion, however, the views of the profession generally have undergone an abrupt change, and the recognition of the enormous influence for evil of intestinal stasis is beginning to impress itself upon their minds. I have introduced the subject here, as I wish to point out most clearly that the primary factor in the development of resting deformities, including the deformities of rickets, is auto-intoxication consequent upon an intestinal stasis, and that the respiratory incapacity which I originally regarded as the primary factor is merely a secondary one, but directly consequent on intestinal auto-intoxication. It is therefore the duty of the medical attendant in a case of resting deformity to deal effectually with the primary factor in the development of the trouble, having rendered himself thoroughly familiar with the symptoms that intestinal auto-intoxication produces in different individuals.

Before going into any detail I would put forward the following general principles which I have formulated and which bear upon the subject.

1. The skeleton represents the crystallisation of lines of force which when transmitted in one direction are laid down as compact tissue, when transmitted in varying directions as cancellous tissue. The arrangement of the cancelli is such as to transmit force applied in different directions to the best possible advantage. Any interference with the form of the skeleton, as by a fracture of a long bone, is followed by an attempt to lay down anew the lines of force, and in the very young subject the recrystallisation is complete, the old shaft being removed and replaced. The older the subject the more is this change limited to the locality of the fracture and the less complete is the restoration.

2. The rates of bone formation in the several portions of growing bones vary inversely as the amount of pressure sustained by them. A subnormal pressure means an abnormal amount of bone formation, while the exercise of a pressure in

[1] The Causation, Pathology, and Physiology of the Several Deformities which Develop during Young Life.

[2] The Effects of Egg White and its Split Products on Animals. The Journal of Infectious Diseases, vol. iv., No. 3, June 1907, pp. 476–508.

[3] Operative Treatment of Chronic Constipation, James Nisbet and Co., 1909; Chronic Intestinal Stasis, Surgery, Gynæcology, and Obstetrics, November, 1910; Civilisation in Relation to the Abdominal Viscera, with Remarks on the Corset, The Medical Publishing Company, 1909; The Kink of the Ileum in Intestinal Stasis, J. Nisbet and Co., 1910, &c.

excess of the normal results in the formation of a subnormal amount of bone.

In the child whose nutrition has been impaired by intestinal stasis and consequent auto-intoxication the amount of nutrition sufficient to produce normal bone is in abeyance. Consequently the bone is of subnormal density, while the periosteum and growing lines are abnormally active. The growing lines react much more markedly to pressure than do those of the normal subject. When this condition of the osseous system becomes a conspicuous feature it is called rickets.

In order that the skeleton shall remain normal it is necessary that it should perform certain attitudes of activity and certain attitudes of rest. For each joint, as for the body generally, there is an attitude of activity and an attitude of rest. The habitual assumption of an attitude of activity results in the first instance in the fixation of that attitude and later in its exaggeration. This can be demonstrated by an examination of the skeleton and soft parts of a man who has for many years been engaged in any laborious pursuit. I cannot illustrate this more clearly to you than by calling attention to the anatomy and physiology of the coal-trimmer and shoemaker, regarding which I published papers in 1887 and in 1888 respectively.[4] Those papers, with others dealing with the anatomy of other varieties of labourers, attracted a certain amount of interest at the time they were published, since they demonstrated evolution in a portion of a single lifetime. The several changes which the body underwent in these labourers were in response to these separate principles—namely: 1. Strain[5] tends to produce ossification along the direction in which it is exerted. 2. Pressure tends to produce destruction of the soft structures intervening between bones and definite changes in the form and density of bones. 3. Whenever it is to the advantage of the individual that an entirely new mechanism should develop independently of the exercise of pressure or strain such a formation tends to arise. In other words, the anatomy of the individual varies with his mechanical relationship to his surroundings.

All the changes which arise in the direction of the fixation and exaggeration of definite attitudes or sequences of attitudes of activity are with the view of reducing to a minimum the expenditure of nerve and muscle energy, and nothing is more striking than this economy as it is manifested by the labourer. Whereas in the adult labourer all the energy is devoted to the performance of a certain movement or sequence of movements in the most economical manner possible, so in the growing child whose store of energy is damped down and reduced by the presence of noxious material attitudes of activity are avoided, and instead the child assumes habitually attitudes of rest. These attitudes in the child, like those of activity in the adult, become fixed and later exaggerated. In the child besides the three laws already considered we have the changes which result from pressure or strain upon the growing lines, and these, again, are still further exaggerated in the imperfectly nourished thick growing lines of the so-called rachitic child. In them also the shafts of the long bones especially may bend for the same reason.

The most conspicuous feature in the child affected by intestinal auto-intoxication is the very defective manner in which the respiratory function is carried on. Since thoracic respiration demands a much greater expenditure of energy than does the diaphragmatic variety, the former is very distinctly in abeyance, and respiration is carried on rather rapidly and superficially by the diaphragm and abdominal muscles. The thorax is retained in a position of complete expiration. This attitude, which forms part of what I have called the symmetrical attitude of rest of the trunk, and is termed by the profession dorsal excurvation and by the public round shoulders, can be studied together with the several tendencies to change in a vertical antero-posterior section of a feeble old person in whom, for the same reason, respiration is carried on solely by the diaphragm. In this position the spine forms exaggerated curves in an antero-posterior plane and the length of the whole column is at its shortest. Should the same child assume habitually the normal asymmetrical attitude of rest of the body such as exists when "standing at ease," the pelvis is rotated around an antero-posterior axis, and the superjacent vertebræ deviate from the middle line so as to form curves in a transverse plane, each vertebra rotating around an oblique axis made up partly by the assumption of the asymmetrical attitude of rest of the trunk and partly by the inequality of the length of the lateral supports of the trunk. From the habitual assumption of this attitude to the exclusion of the corresponding attitudes of activity the typical scoliosis or lateral curvature of the spine results. From the type that arises in this manner there are variations owing to the varying factors or positions that may incline the pelvis, as riding on a side saddle, faulty sedentary attitude, &c.

Knock-knee results from the habitual assumption of the attitude of rest of the knee-joint. In this position the superjacent weight is transmitted through the knee-joint in such a manner that the anterior and outer quadrant of the epiphyseal line transmits an abormally great amount of weight, while the posterior and inner quadrant sustains a pressure less than normal. In consequence the external femoro-tibial angle becomes reduced, as also does the anterior femoro-tibial angle. The latter may be very marked when the backward displacement of the knee-joint is referred to as "back knee." These epiphyseal changes are exaggerated in the condition of auto-intoxication called rickets, in which the displacement of the knee is still further increased by the bowing of the shafts of the long bones in a plane which runs from before backwards and inwards.

Flat-foot is due to the habitual assumption of the attitude of rest of the foot, which later becomes fixed and then exaggerated. The position of rest of the foot is one of abduction, while that of activity is one of adduction. The coal-heaver who carries habitually a heavy load on his back has his foot fixed in the position of activity or of adduction. Similarly the child whose activity is depressed by a varying degree of auto-intoxication assumes the resting posture constantly and the condition develops.

When I first described the causation, &c, of flat-foot it was regarded as being due to the yielding of an elastic inferior calcaneo-scaphoid ligament. I was able to demonstrate that this was a totally wrong conception, and that the anatomy and physiology of the foot was quite different from that described in the text-books of surgery and anatomy. I am sorry to say that both surgeons and anatomists move slowly, and that they appear to have failed to grasp the importance of this subject. I do not propose discussing the details here, as I have nothing to add to that paper which is now a quarter of a century old.

I have here merely considered the general principles which must influence the surgeon in his treatment of the condition. The details of treatment follow naturally on those lines.

Cavendish-square, W.

[4] A Remarkable Example of the Manner in which Pressure Changes in the Skeleton may Reveal the Labour History of the Individual, Journal of Anatomy and Physiology, April, 1887; The Anatomy and Physiology of the Shoemaker, Ibid., July, 1888.

[5] The Result Produced upon the Muscles, Bones, and Ligaments by the Habitual Exercise of Excessive Strain, Brit. Med. Jour., Dec. 1st, 1888.

THE EDUCATION OF THE DEAF:

ITS PRESENT STATE IN ENGLAND, WITH SUGGESTIONS AS TO ITS FUTURE MODIFICATIONS AND DEVELOPMENT.

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III.[1]—THE AGE AT WHICH EDUCATION SHOULD COMMENCE. THE APPLICATION OF EUGENICS TO DEAF-MUTISM.

IN this, the concluding article, I shall deal with the second need postulated in the introduction, "the education of the congenitally deaf and of those very deaf children who, by reason of the early age at which they acquired their deafness, have not developed speech, to be commenced at a much earlier age than is now the general rule, in order to give them that physiological, in contradistinction to pedagogical, training to which they have as much right as the normal hearing child."

As in discussing classification, so I shall first review very

[1] Articles I. and II. were published in THE LANCET of Feb 25th (p. 495) and March 4th (p. 574) respectively.

briefly the courses followed in different countries, and, in comparing the education of the normal with the deaf child, offer certain observations which seem to me to give strong physiological reasons for commencing the education of the very deaf at a much earlier age than has hitherto been considered advisable, using the term "education" in its physiological rather than in its pedagogical sense.

According to Bélanger[2] it appears that in France the age of admission to the schools varies considerably, and the general tendency is to reduce it. Although some pupils commence at six years, and sometimes earlier, circumstances seldom allow them to enter the schools before 11 or 12 years of age.

In Italy the want of legislation appears to make the age of entry, into the few charitable schools for the deaf that exist, uncertain.

In Germany the children attend compulsorily from the age of 6 to 14 years. In Denmark instruction commences at 8 years; in Holland at about 7 years, under certain circumstances even a little earlier.

In the British Islands the majority of children commence at about 7 years, but in some schools they are received at 5 years. In England it is compulsory that all deaf children should begin their education at 7 years of age, but a Government grant can be obtained for them if they enter at 5 years. In the Irish schools mentioned in the first article the general age of admission appears to be 8 years.

In the United States, as was the case with classification, a somewhat better condition of things exists. Few schools, it is true, receive children earlier than seven years of age, but there are pupils in the Pennsylvania Institution for the Deaf and Dumb one year younger. There is, however, a tendency in America, not only to keep the deaf child at school later in life, but—and this is of great importance—to take him in hand very early. This is done at Boston, under Miss Fuller; at Chicago, under Miss McCowan; and at Bala (near Philadelphia), under Miss Garrett. The last-named institution, taking children at 4, 3, or even 2 years, claims that they can enter ordinary hearing schools six or eight years later. The tenth report of this "Home for the Training in Speech of Deaf Children before they are of School Age" for 1910 states that the aim of its trustees is "to surround young deaf children with the same uninterrupted condition for acquiring articulate speech and language with which all hearing children are surrounded, the difference being that sight instead of hearing is the medium used. The use of either natural signs, arbitrary signs, or the manual alphabet is strictly prohibited." It now contains 65 children, and the success of this excellent institution is undoubtedly very great. It is well spoken of by Dr. Kerr Love and Mr. F. G. Barnes, both of whom have visited it, although I understand that both these gentlemen doubt the wisdom of passing on such seriously handicapped children to ordinary hearing schools.

I have no desire to express any opinion as to the wisdom of taking children early for oral training with the intention of transferring them later to hearing schools, because I have no practical knowledge thereof, and do not care to form any judgment thereon from printed reports or from hearsay evidence. But I do believe that the practice, which appears universal, of making no effort for compulsory oral training before six years or even later, is a grave mistake, and a potent cause of failure in the oral training of the deaf.

This view I shall endeavour to substantiate to the best of my ability, and, to do so, the physiological education of the normal must be compared with that of the deaf child. The development of speech has been admirably described by Dr. John Wyllie,[3] whose dissertation should be read by every person interested in the matter, and especially by every teacher and every parent, actual or expectant, and to whom I would refer the reader for details. By the end of the second year of his age a normal-hearing child has already some understanding of words spoken, together with a vocabulary of words of his own invention and a limited production of intelligent speech. He is able to say short baby sentences of two or three words. Between the ages of two and seven the hearing child is rapidly developing, whilst his unfortunate deaf brother is at a standstill. The former is receiving items of education every minute of his waking life, through the channels afforded by his organs of hearing, so that not only are speech and language being continuously impressed upon his cerebral cortical centres, but they are, by ceaseless reiteration, becoming stored up both as sensory and motor memories. This ceaseless reiteration is a highly important factor, for it goes to make speech perception and speech production automatic, and is practically absent in the deaf child. By this constant repetition, and by the intimate relation between the language-appreciating centres and the language-producing centres speech becomes automatic before the education begins of those centres which are concerned with writing and more difficult language training, centres which are of later development in the history of the race than are those of mere speech, and are preceded in the normal child by a pre-speech era of gesture language. It is a well-known axiom that as the pre-natal development of the child is an epitome of the phases of his evolution from the unicellular ancestor, so is his post-natal development an epitome of the evolution of his race from barbarous savage to civilised man. Gesture, sign language, inarticulate vocal cries, and the crude and poorly developed thought which accompanies those simple attempts at expression are all seen in the normal child until he attains to primitive and later to more perfected speech—"the silver bridge over which the thought of man has come to travel."[4] It is this pre-speech era of gesture language which becomes more fixed (probably because it is older in the racial history and, therefore, more easily used) in the deaf child to the detriment of oral training, and it is for this reason, joined to his strong faculty of imitation, that deaf children are so prone to revert to signs if allowed to associate with oral failures. The fact of automatic speech is of enormous importance to the normal child, especially because it commences to develop early, and I believe that by training the speech centres in the deaf at an earlier age we might help them at least to approach the automatism of speech of the hearing child.

The inestimable value of hearing in the physiological education of the speech-centres in the normal child is strikingly demonstrated when we compare the blind with the deaf. Although the former defect receives considerably more sentimental sympathy from the casual observer than does the latter, the blind child has infinitely less difficulties in education. It is true that one of the main entrances of instruction is closed for him, but it is one by which general effects rather than exact thought impressions reach his brain. So long as he has hearing his speech progresses with practically the same rapidity as the normal child, and in consequence his intellectual development proceeds at a nearly equal rate. The congenitally deaf child obtains his general effects through his visual organs, but, by reason of his aural defect, he can neither obtain expressions of exact thought nor formulate his own thought in exact terms. Consequently his school life begins at *seven* in the intellectual condition of a child of *two*. To put it plainly, for five precious years his intellectual development is arrested, and this is, as Kerr Love points out,[5] physically expressed by his relatively smaller head.

But there is yet another very important fact to be taken into serious consideration—the question of *hereditary tendencies to speech*. We represent the at present "last word" of a long line of speaking ancestors—a line so long that the first members thereof who could speak must have existed untold ages back in the world's history. We cannot tell at what precise epoch the first glimmerings of primitive speech made their appearance, but I do not think it would be a very preposterous suggestion to say that *Pithecanthropus erectus*, whose remains bring us to the first dawn of man in Pliocene times, must have possessed the rudiments of speech. The cranial capacity of this fossil is absolutely greater by about 250 c.c. (or over 30 per cent.) than that of the largest skull of the Simiidae, being 855 c.c., the associated brain weight being estimated at 750 gm.[6] The evolution which must have gone on without interruption since the first appearances of primitive man—a period which can hardly be estimated in years—has

[2] Report of the International Conference on the Education of the Deaf, held in Edinburgh, 1907, p. 51.

[3] The Disorders of Speech, Edinburgh, p. 87.

[4] Kerr Love: The Deaf Child from the Viewpoint of the Physician and the Teacher, The Teacher of the Deaf, vol. ix., p. 7.

[5] Deaf Mutism, Kerr Love and Addison, Glasgow, 1896, p. 17.

[6] Morphology and Anthropology, W. L. H. Duckworth, Cambridge, 1904, p. 541.

slowly elaborated those portions of the central nervous system concerned with speech from the very beginnings of our remote ancestry, and the power of developing similar structural connexions of nerve cells and fibres has been handed down through countless generations and rendered more and more perfect by each, until we have been born with a potentiality for developing as complex and perfect nervous arrangements as those of any individual who has preceded us. It is thus that the centre for speech has been made more apt for expressing exact thought, and this was strikingly evidenced when Helen Keller made the demand "I must speak," a demand which also demonstrated that, not only is there a hereditary tendency to speak, but also a hereditary tendency to develop the general faculties *through* and *by* speech. It was when her centre for speech, with its æons of hereditary tendencies, was allowed to come into play that Helen Keller felt that she was in a new world, and said "My soul, conscious of new strength, came out of bondage, and was reaching through these broken syllables to all knowledge and faith."

In furtherance of this contention, I would like to quote a paragraph from the tenth report of the trustees of the Philadelphia Home founded by the Misses Garrett (p. 3):—

> They [the pupils in the Home] have the same hereditary tendency to talk as hearing children, and even though they may have deaf parents and other deaf ancestors, we know that reaching back to the time of Charlemagne we all had billions of hearing ancestors. *There is no exception to the fact* that every one of them shows a varying degree of desire to use its voice in efforts to articulate from infancy, *as hearing infants do.*—[The italics are mine.—M.Y.]—We believe that every deaf child's imitative powers and its hereditary tendency to talk should be met by the encouragement and aid which is given to the hearing infant's initial efforts. As stated by Sir James Crichton-Browne, "the cerebral centres presiding over the movements of the vocal apparatus—that is to say, the larynx, tongue, lips, &c., are placed in the brain anterior to those which preside over the movements of the hand, arm, and shoulder, and are probably, therefore, in more intimate connexion and communication with what we regard as strictly intellectual centres."

Are we not neglecting an obvious duty as well as opportunities of great value when we take no heed of these hereditary tendencies? We ignore them whilst the deaf-born brain is plastic, suffering them to remain dormant and to perish from inanition. Are they not equally as precious as the "residual speech" we seek to foster in the child who has become deaf after speech has been partially acquired, or as valuable as any residual hearing in the semi-deaf?

It is upon these arguments that I base my contention that the education of the deaf should be made compulsory at a much earlier period than is at present the custom. But any attempt to further this contention is not without opposition, although I believe that this opposition is becoming smaller and less potent every year. At a Council of (British) Head Masters held in 1904, it was resolved to be desirable that deaf children should be placed under proper training at or near the age of five years, and the Norwich Conference of the (British) National Association of Teachers of the Deaf in 1905 further resolved that this earlier education should be made compulsory. A protest from certain teachers elicited an eloquent and convincing rejoinder from Mr. Arthur J. Story, in which his conclusions so thoroughly coincide with my own that I venture to call them to my support for compulsory training at an earlier age. Recently the Council of Head Teachers of Day Schools for the Deaf unanimously resolved "that steps should be taken to lower the compulsory age for attendance at school from seven to five years,"[7] and the mover of the resolution remarked that he would have liked to have inserted that grant be payable on deaf children over three attending school. This shows that the importance of early training is recognised by teachers themselves. My arguments may be summarised as follows:—

1. The child who is normal, save for his deafness, is engaged in a continual struggle to make himself understood and to understand those about him; but unlike the hearing child, his natural yearnings—including his hereditary tendencies to speak—have to go unsatisfied. The deaf child finds some form of expression essential and endeavours to evolve one which can act as a vehicle of thought. Without oral speech, he has to elaborate that gesture language which I have already mentioned as belonging to the pre-speech era and, thus suppressing the play of hereditary speech tendencies, substitutes gesture for speech, a substitution which renders the later acquisition of speech more and more difficult as time goes on. Even if the earlier speech training which I advocate did not completely obviate this expression by gesture (and I believe that it would very largely do so), we should at least give the child the opportunity of becoming bi-lingual, thinking simultaneously in elementary speech and signs.

2. The hearing child develops intellectually without any special care, and he physically outgrows his infancy at about five years of age. Why, when it is in our power to make him early aware of speech as a means of intercourse and for the expression of his ideas, should we prolong this mental babyhood beyond that of the hearing child by denying to him an earlier training? Why should he be forced to remain infantile in mind and be denied the means of mental development?

3. The plastic brain period of the child is past at seven years, and to delay physiological education until that time may be compared to an attempt to model clay that has been allowed to become dry, save that the clay can be wetted anew, whilst the brain-clay of the child is past moistening. Moreover, the muscles which control the speech-organs become to some extent atrophic from disuse if not developed, a circumstance which cannot fail to react disadvantageously upon the speech-centres. "Is it not necessary," asks Bélanger,[8] "to use the larynx as soon as possible? That delicate organ which ought to be the pivot of our method of instruction?" The bad effects of this neglect of the speech-organs under our present methods of oral instruction when the plastic period is past are plainly shown by the artificiality and limited or absent automatism of speech taught when the vocal organs have been for years in comparative idleness.

4. The importance of "residual speech" is universally recognised, and often, if one comments upon the good articulation and intonation of a scholar in a deaf school, one is told "Oh! that case has residual speech." Indeed, one soon becomes able to pick out the children who started with this advantage. These speech remains can be easily and irrevocably lost by neglect. Why should we not recognise the equal value of the hereditary tendencies to speech and to develop the faculties of intelligence through speech, assets which are probably more quickly perishable?

5. It is acknowledged by law and practice that hearing children should begin their pedagogical education at five years. Why should not an equal right be accorded to the deaf? The normal deaf child is not an idiot, an imbecile, or mentally defective; he is no more defective than his normal blind fellow, but, like him, merely suffers from the loss of a valuable sense organ, but, unlike him, it is one the defect of which cuts him off from the most precious of human possessions, the ability freely to exchange thoughts and ideas with his fellows. The hearing child, even when he is blind, is receiving what I have termed "physiological" education at a much earlier age, and I claim that the deaf child has an equal right to this early physiological education, and, as it requires to be carried out by those who are experienced in deaf teaching, it should be provided for by law. The deaf child, of all classes of children, can least afford to lose the full advantage of his most impressionable years, and these years are, physically and physiologically, the most appropriate for the commencement of suitable instruction. I may point out that it is compulsory for the blind child, who has so much advantage over the deaf child, to attend school at five years.

6. It is possible that, by means of this earlier training, the automatic speech attained to by hearing children might be at least partly acquired by the deaf. This automatism, which is really only the outcome of almost ceaseless practice, would be materially assisted by the "synthetic" lip-reading which must be developed in any form of oral teaching. To lip-read with facility requires practice, and the earlier this practice is called into regular use the quicker and more certain it is liable to become. Such facility in lip-reading gives the child command of a means of acquiring new language by sight, a method second only in usefulness to hearing.

Although I am not wholly inclined to the belief that sight can ever be made completely to supplant hearing, I do believe that, by special direction and assistance at a sufficiently early age, the visual centre might be made a very good working substitute for the auditory centre as a stimulus

[7] The Teacher of the Deaf, vol. viii., p. 162.

[8] Loc. cit., p. 52.

for the speech centres. It could, I am sure, be made a centre for the appreciation of language, which would act in relation with that for the production of language.

It scarcely comes within my province to speak of the method by which this earlier physiological training should be carried out, but I am inclined to the opinion that it should be of the nature of kindergarten classes, under experienced teachers of the deaf. These should use elementary articulation lessons calculated to encourage deaf children from the age of three years to chatter at their play, to encourage baby prattle about games, toys, and similar matters of infantile interest. Set lessons during the physiological stage of the deaf child's training should be conspicuous by their entire absence; they should be banished rigidly until the child enters, with some elementary language which he can express orally with a certain ease, upon the pedagogical stage. During this physiological, kindergarten stage of instruction special attention should be paid to language forms which are most easily lip-read and imitated, always remembering that easy articulation should be used most freely. Unless the terms and phrases most easy of articulation and most easily understood by the child are made the dominant feature of the teaching there would be a danger of laying a foundation of bad articulation, a danger which would neutralise part of the good accruing from this proposed early teaching. I would emphasise the paramount necessity of employing only teachers of proved experience, teachers able to judge the necessities of the child, able to enter into his mental processes—in other words, to see with his eyes—and able thoroughly to *interest* him and to make him realise the value of spoken language as a method of communication. The words and phrases which could be grasped synthetically and reproduced with a fair amount of accuracy would come first, the difficult "elements" taught by articulation lessons being gradually led up to and introduced.

If there is any possibility of the visual centre being trained to take up the duties of the auditory centre as a stimulus to those presiding over speech, this early physiological course would take full advantage of it, and would train the child into a *habit* of using his eyes in place of his ears. The possible danger of laying a foundation of bad articulation could be obviated by the experienced teacher, and the chief aim should be to obtain a facility and fluency of speech which would prevent that artificiality so often complained of as characteristic of speech in the deaf.

It must be remembered that this early training of the deaf was approved of in the United States, by the House of Representatives in Pennsylvania, as long ago as 1891. In the discussion upon the Bill then passed, a member of the House made the astonishing statement that it would injure little deaf children mentally and physically to be taught to speak before they were of school age. It would be equally logical to say that such teaching similarly injures the normal-hearing child. The extraordinary folly of this remarkable assertion is amply demonstrated by a perusal of the reports of the Garrett Home and of the opinions of those who have visited it. Something has already been done in the cause of early training in London, and I would point out the encouragement afforded by the following paragraph in the annual report for 1909 of the school in Fitzroy-square:—

> A preparatory or kindergarten class has been opened in the schoo for young children, and the character of the work which has been accomplished fully justifies the innovation and strengthens the belief that it serves a distinctly valuable purpose.

In one of our London County Council Deaf Centres is a child, now aged 5 years. She was admitted at the age of 3½ years, and is a congenital total deaf-mute. During her first term she did not appear to be learning much speech or figures, but she showed great imitation. She wrote with chalk on the blackboard and on brown-paper forms of parts of letters, &c., and imitated the motions of the mouth. She threaded beads, sewed embroidery cards, played games, and imitated the actions of older children. In her second term she learned some sounds and spoke them, and was keenly interested in kindergarten occupations. During her third term she acquired a vocabulary of six words, could speak long vowels and nearly all the consonants. When in her fourth term she attained the age of five years and can lip-read well. She knows all sounds and combinations of Stage I., written and oral, and has a vocabulary of 38 words and 18 actions. In language she can answer orally such questions as "What have you?" "What colour is the ——?" and knows the colours blue, black, yellow, and white, naming them correctly. She can knit, sew on canvas, and do the usual kindergarten occupations. She talks a great deal[9] and lip-reads well in class. Her synthetic lip-reading for orders is good. She is bright and happy in school, is seldom absent, and is trying for a medal. She has half an hour's walk to the train by which she travels to and fro, and her parents affirm that they have never regretted sending her to school at such an early age. This child of 5 is, therefore, at the stage which, under the present system, is only attained by children who have entered at 7 when they are past, or well on towards, 9. If so much can be done for a normal totally deaf child in the ordinary classes of a deaf school, what could not be achieved in a special class such as I have suggested? Another case, a boy, a congenital deaf-mute, concerning whom his parents consulted me in May, 1907, when he was 3½ years old, was admitted at my special request by the late Mr. William van Praagh to Fitzroy-square. His success has been quite equal to that just related, to the great satisfaction of his parents.

I have mentioned these two cases as practical illustrations in favour of early education and to avoid the adverse criticism that may be raised by a certain section of educationists as to the advisability of placing a deaf child at a special school at so young an age. I would point out, if I am accused of a desire to drag children of tender years from the care of their parents, that the physiological education of the deaf pre-eminently necessitates a special teacher, and that no parent, however willing and well-intentioned, can carry it out unless he is himself an experienced teacher of the deaf. I believe that the object which I advocate could be attained by short school hours with plenty of play—play being, indeed, itself a means of teaching—upon, say, five half-days a week, the child being absent from home only during those times. Parents would soon become impressed with the advantages that their children were receiving, and could help the teachers by home influences. Indeed, not only have the parents of the two children just cited expressed their lively appreciation of, and satisfaction at, the results obtained, but other mothers and fathers have stated to me that they were wishful for such an arrangement for early training.

I believe that, under such circumstances, whilst brain and larynx are more plastic than at seven, or even five, the speech centres could be stimulated to better development, and that the hereditary tendency to speak could be preserved, encouraged, and fully utilised, so that some degree of automatic speech could be made possible. Surely such a course would greatly increase oral successes both in number and degree, give fewer oral failures, lead to further improvements in classification, emphasise individuality, make the deaf child more nearly approach to the normal child at seven years, and enable us to distinguish earlier the mentally deficient and the mentally deficient deaf. I need scarcely say that this applies equally to those cases of acquired deafness who, having lost their hearing at two years and onwards become, under existing conditions, mute before seven years.

I have now dealt briefly with all the present needs, which would go to make a better system of educational treatment for the deaf, postulated in my first article, save one. This was the need of endeavour to diminish the number of deaf children requiring special education by the application of eugenic principles to deaf-mutism in the case of the congenitally deaf, and by a better care of the ears in children by medical practitioners. The latter has already been discussed to an extent sufficient for the present needs of these articles. The former I have gone into at some length in a paper read before the Eugenics Education Society last year.[10] This paper was based upon facts gathered from the examination of 691 deaf children of both sexes in the London County Council's schools, of whom 407 had acquired their deafness after birth, or whose condition was doubtful in origin, and 284 were undoubted congenital cases.

The difficulties which stand in the way of obtaining accurate information and adequate family histories in cases of congenital deafness are very great, especially among the class from which these children are drawn. Very few

[9] She early began to try to talk, evidence of her hereditary tendency to do so, a tendency which, I venture to believe, has been awakened and developed by her early training in oralism.

[10] Eugenics and Deaf-mutism, Eugenics Review, January, 1911.

parents know their family histories, medically speaking, beyond those of their own immediate progenitors, and their knowledge of the collateral branches of their families—a matter of the highest importance—is even less. The difficulties are, if anything, greater in dealing with families having the taint of insanity or alcohol, although the sojourn of some member in a lunatic asylum is sometimes regarded as a sort of family distinction, a matter, maybe, for congratulation. A similar feeling is sometimes met with in regard to deaf-mutism, as is exemplified by a proud father, who greeted me with the words "We've four generations of born-deafers, and all on the missus's side!"

It is impossible to enter into any detail here of the results of this small investigation into the histories of the 691 children dealt with, but I will give some of the figures obtained, referring the reader to the original paper for further information. Out of the 284 congenital deaf-mutes, in 43 cases, or 15·4 per cent. of the whole, no family histories of any kind were obtainable, and in 132 cases, or 42·9 per cent. of the whole, there was no history of deafness or of any fact of importance which might bear upon the cause of the defect. In 13 families, or 4·5 per cent. of the whole, whilst there were no ascertainable data regarding the presence of other deaf-mutes, there were histories of neurosis or of alcohol. In one of these cases, both paternal grandparents died from "paralysis," the father was mentally defective, one paternal uncle suffered from "fits," and one paternal aunt died from phthisis; the case himself was congenitally deaf and mentally defective and he had a mentally defective brother. Another family, of which the mother was alcoholic, comprised one boy congenitally deaf, one boy an idiot, one boy with hydrocephalus, and a pair of twins, one of whom died from "fits," the other from neglect. In 89 families, or 31·6 per cent. of the whole, there was a family history of deafness, acquired only in ten of these. The elimination of these ten cases left 79 families (24·5 per cent.) with histories of congenital deafness, distinct from those in which there was consanguinity. I have no doubt that there would be found many more families with a history of congenital deaf-mutism among the 284 children born deaf, were it possible to get at the truth with more precision. Consanguinity was noted in 14 families, or 4·9 per cent., and of these the parents were first cousins in nine cases, second cousins in one case, whilst in four cases the degree of cousinship was not ascertained. As a contrast to these cases, consanguinity was present in only three cases (0·7 per cent.) out of the 407 children whose deafness was definitely known to be acquired after birth or to be doubtful in origin. The number of congenitally deaf in each family was ascertained to be: one in 40, two in 18, three in 16, four in 4, and five in 1 family.

According to the table published by Holger Mygind,[11] drawn from statistics of 7063 deaf-mutes from Nassau, Cologne, Magdeburg, Denmark, Saxony, Ireland, and Mecklenburg, about 15 per cent. of the marriages which result in deaf-mute offspring produce two or more deaf-mute children. Probably the percentage, could very accurate statistics be obtained, would be found to be greater, for it is only right to mention that in Mygind's table many of his statistics include deaf-mutes in general and not congenital cases in particular. Only his Irish statistics refer solely to congenital cases, and in these out of 3045 marriages 2506 produced one case each, 324 produced two, 149 three, 38 four, 22 five, 5 six, and 1 the enormous number of ten deaf-born children. The percentage of marriages in Ireland (taken in 1881) resulting in more than one deaf-mute was, therefore, 20·9.

It will be of advantage to sketch very briefly the present state of our knowledge as to the influence of the two factors, heredity and consanguinity, which occur with sufficient frequency in the histories of those born deaf to warrant their being regarded as effective causes of congenital deafness. The opinions expressed as to the value of these two factors have differed widely from that of Kramer, who made the somewhat dogmatic statement that "deaf-mutism is not a hereditary disease,"[12] to that of Wilde, who was the first to lay stress upon the opposite view. To reach the truth of the matter, one must look at the idea of heredity from a wider standpoint than that of mere direct transmission and consider not the direct ancestry, but the collateral family tree. The matter is expressed so well by Kerr Love in his work on "Deaf-Mutism" (p. 101) that I may be excused for making a somewhat lengthy quotation from him.

> It is not enough to seek for the cause of congenital deafness only in the parents of the affected child. These may hear or be deaf, but that single fact teaches little. Indeed, in the first generation the tendencies of two congenitally deaf parents may so counteract each other that the result is a hearing child; but reversion will ultimately assert itself. The second generation will probably follow the grandfather or grandmother with greater faithfulness, and a deaf grandson will result, or the characters of a prepotent progenitor separated by many generations may crop up, and an unlooked-for outbreak of deafness may take place. In calculating, therefore, the chances of deafness in a family in which it is feared, our view must not only include the immediate progenitors, but the whole family antecedents on both father's and mother's side. This statement is of practical importance; it takes all, or nearly all, the value out of the proposal to prohibit the intermarriage of the congenitally deaf, for, as has been shown, the hearing members of a deaf-mute connexion send down the tendency to deafness with as great certainty as the deaf members.

Congenital deafness is less frequent in the direct ascending line (grandparents and parents); more frequent in the collateral branches (great-uncles and great-aunts, uncles and aunts, grandparents' cousins, parents' cousins, cousins and second cousins); and most frequent among the brothers and sisters of the deaf-mute. Mygind points out[13] that, out of 553 deaf-mutes, of which 226 were congenital, in Denmark, 110, or about one-fifth, had one or more congenitally deaf brothers and sisters, but only 37, or about one-fifteenth, had one or more deaf-and-dumb relations in more remote degrees. That is to say, there was one deaf-mute relative, not including parents, brothers, and sisters, to every sixteenth deaf-mute. Those who hold the opinion that congenital deafness is not hereditary cannot say that the defect is as common amongst the relatives of normal people.

The factors which may influence the heredity of deaf-mutism are just as variable as in the case of other abnormalities. The special character of the parent may be present in only a few of the offspring, or an entire generation may be unaffected. I am not aware that Mendelian principles have as yet been applied to congenital deafness, and the difficulty of obtaining sufficient data for practical use in this regard is very great.

Consanguinity of parents, like heredity, has given rise to much dispute. Some consider that such marriages are harmless, taking as their point the beneficial results of in-breeding in domestic animals. Without entering into details it may be pointed out that the conditions are not similar, for with the artificial selective breeding of animals only perfect specimens are admissible, whereas it is notorious that no such precautions are taken in the consanguineous marriages of man. Mitchell[14] found that in 400 deaf-mutes 1 in every 16 had parents who were blood relations,[15] whereas the proportion of cousin marriages in Great Britain is probably about 1 in 60 or 70. In Denmark, according to Mygind,[16] the proportion of cousin marriages is about 3 to 4 per cent. of all marriages, but 6·75 per cent. of the deaf-mutes admitted to the Royal Deaf and Dumb Institution in Copenhagen were the result of such marriages. A fact which bears upon this question is the proportion of deaf-mutes amongst different religious sects having different marriage customs. Congenital deafness is much more common amongst Jews than amongst Protestants and Roman Catholics, and it is more common amongst Protestants than amongst Roman Catholics. Now Jews intermarry largely, whilst Roman Catholics discourage cousin marriages, and Protestants permit such unions.

A monumental piece of work upon the question of the causes underlying congenital deaf-mutism is that by Fay,[17] which contains exhaustive statistics of 4471 such marriages. These statistics show that marriages of the deaf are somewhat but not very much less productive than ordinary marriages, and that the marriage of deaf persons (taken as a whole without regard to the character of their deafness) in which one or both partners are deaf are far more liable to result in deaf offspring than marriages in which both partners are hearing. A chapter of this work is devoted to consanguineous marriages of the deaf, of which there were 31 in the 4471 marriages dealt with (0·693 per cent.). An examination of these showed that the percentage of deaf children

[11] Mygind: Deaf-Mutism, London, 1894, p. 53.

[12] It is an obvious error to speak of congenital deafness as a "disease," it is more correct to describe it as a "defect."

[13] Mygind, loc. cit., p. 52.

[14] Edinburgh Medical Journal, March, April, June, 1865.

[15] My own figures, given above, show 1 in every 22½.

[16] Mygind, loc. cit., p. 87.

[17] Marriages of the Deaf in America. Washington: The Volta Bureau, 1898.

born from marriages reported as consanguineous was nearly four times as great as from marriages not so reported. In the concluding advice given to the deaf, therefore, it is stated that under no circumstances whatever should union be permitted among those who are related in any degree of consanguinity. It was a study of United States statistics that led Graham Bell, the inventor of the telephone, to write his warning pamphlet, "On the Formation of a Deaf Variety of the Human Species in America."

Interesting examples of communities are extant which give support to opposite views as to consanguinity. Of these it will be sufficient to quote two. In the island of St. Kilda, off the Outer Hebrides, intermarriage has gone on for centuries, yet no case of congenital deafness has ever been known there. On the other hand, at the Island of Martha's Vineyard, on the southern coast of Massachusetts, where intermarriage also obtains, there were, in 1880, 20 congenital deaf-mutes in a population of 500.

A possible explanation of conflicting facts met with in discussing the effects of consanguinity has been suggested by Mackay,[18] based upon the investigations of Thomson into the marriage customs of Fiji. In Fiji, cousin marriages are considered from two aspects: (1) where the contracting parties are the children of two brothers or of two sisters; and (2) where the contracting parties are the children of a brother and a sister respectively. Thomson has shown that the relationship between the children of two brothers or of two sisters is exactly the same as the relationship between the children of the same parents, and therefore marriage between two such children is strictly forbidden. On the other hand, cousins of opposite sexes, of whom the father of one is brother to the mother of the other, are said to be "concubitants,"[19] that is to say, marriage between them is not only encouraged, it is obligatory. From an examination of census figures, taken with a view to the study of Fijian marriages, Thomson found that, as to both fecundity and vitality of offspring, the marriages between concubitants are superior to those between relations (not concubitants), or between fellow townspeople (not related), or between natives of different towns. In contrast with this, it appeared that marriages between relations (not concubitants) are greatly inferior to those of any other class. Whilst pointing out that this consideration, applied to the investigation of deaf-mutism, would mean the preparation of entirely new statistics, Mackay believes that, if this were done, it might reconcile present discordant opinions.

It is impossible totally to eradicate congenital deafness for a certain number will always appear, like other sporadic cases of defect. Their number could, however, be enormously reduced by the application of eugenic principles. If deaf-mute marriages, the union of blood relations, and the union of alcoholics, syphilitics, and those with a family taint of insanity could be prohibited, that alone would be of great assistance. We can at present, however, only educate public opinion. The medical practitioner has many grave responsibilities upon his shoulders, and not the least important of them is his duty to the State. He has it in his power to educate the public both by precept and by example, and he should never neglect an opportunity of using that power. It is a great pity that the doctor is not more often heard in Parliament, not as a crank, but as one who has exceptional opportunities, by education and experience, of giving valuable and practical aid to the State. But, for many reasons, the medical profession has, in this country at least, to work silently. Honours fall more readily to the destroyer than to the saviour, to the talker than to the thinker, and it needs repeated hammering to make people understand that it is the saviour and the thinker who are really of most worth. It is the medical practitioner who should be foremost in eugenics, and from what I have said it is evident that in the application of eugenic principles it would be possible greatly to reduce the number of deaf-born persons requiring special education. Out of 691 deaf children we have seen that 284, or over 41 per cent., were congenital. Could these be eliminated greater attention could be paid to the 407 acquired cases, their classification would be simplified, and the results of education would be better.

Queen Anne-street, W.

[18] The General Practitioner and Deaf-Mutism, The Practitioner, October, 1908.

[19] Concubitancy in the Classificatory System of Relationship, Journal of the Anthropological Institute, May, 1895.

NOTES ON THE DURATION OF INFECTIVITY OF ENTERIC FEVER

AS ILLUSTRATED BY REPEATED BACTERIOLOGICAL EXAMINATION OF 27 CASES.

BY ALFRED HARRIS, M.B., CH.B. VICT., D.P.H. CAMB.,
ASSISTANT MEDICAL OFFICER OF HEALTH, SOUTHAMPTON.

ATTENTION has been given recently to the fact that patients convalescent from enteric fever pass, for a variable time, typhoid bacilli with their stools and urine. In order to estimate the length of time during which the bacilli may continue to be excreted a routine examination of the stools has been carried out during the last few months of all enteric fever patients treated in the Isolation Hospital, Southampton.

The usual routine methods have been employed. A small portion of the stool is mixed with sterile water, and two Petri's dishes are inoculated by means of a glass rod. Both dishes are inoculated by the same rod, the reason being that the first plate will as a rule contain, on being incubated, too many colonies; the second plate generally shows the colonies quite separate, and subcultures can be easily carried out. If the colonies on the plate are too numerous, most of the lactose of the medium is used up, and consequently there will be some B. coli colonies which do not show the characteristic change. For this reason an overcrowded plate should be discarded when subculturing colonies.

The following media have been employed in this investigation in order to make the first differentiation between the B. coli and the typhoid colonies: (1) McConkey's bile-salt neutral-red agar; (2) Endo's fuchsin agar; (3) Werbitzki's China-green agar; (4) Conradi-Drigalski's medium; and (5) Faucus's brilliant green agar. The principle of most of these media is the same. Lactose is added to the medium, which is decomposed, with formation of an acid, by the B. coli and not by the typhoid bacilli. The acid so formed acts on the indicator in the medium and changes its colour, thus enabling the B. coli group of organisms to be separated from the typhoid group.

There are other organisms, however, occurring in the intestines which are non-lactose fermenters, and therefore subcultures are necessary in order to identify the typhoid bacillus. The following additional tests are made: 1. Litmus milk cultures should show acidity and no curdling of the milk. 2. Indol ought not to be produced on growing the organism in peptone solution. Some varieties of peptone do not show indol production with any organism, so that the peptone solution should be tested beforehand with a known indol-forming organism. 3. Hanging-drop preparations should show a motile bacillus. 4. The organism should produce acid but no gas in glucose and mannite litmus peptone solutions.

As regards the choice of a medium for the preliminary separation of the organism, I have found McConkey's neutral-red bile-salt agar to be the most reliable. Endo's fuchsin agar is very sensitive, but it possesses two disadvantages: 1. It changes its colour and becomes useless if exposed for any length of time to the light. 2. The plates must be examined frequently at short intervals; if left too long in the incubator the deep-red B. coli colonies tend to spread and obscure the colourless non-lactose-fermenting colonies.

Faucus's brilliant green agar does not possess any advantages over McConkey's medium and is a little more difficult to prepare. Werbitzki's China-green agar differs from all the other media in not containing lactose. It consists simply of a 3 per cent. nutrient agar medium brought to a reaction of + 13 (Eyre) and containing 0·003 gramme of Grübler's China-green in every 100 c.c. of the medium. On this medium, as Professor McWeeney points out, about 75 per cent. of the B. coli colonies are suppressed, and the developing colonies are small, opaque, and point-like. The typhoid colonies are larger and darker in the centre. Professor McWeeney recommends this medium for the detection of typhoid bacilli in stools.

The stools of 27 patients have been examined and cultures made during the convalescent stage after the temperature had reached normal. In cases showing a positive result weekly examinations were made until a negative result was obtained. Of course, in a hospital it is not practicable to

Number of case.	Sex and age.	Date of admission.	Day of disease on admission.	Date of normal temperature.	Duration of pyrexia after admission in days.	Dates of examination of stools.	Number of days of normal temperature preceding examination of stools.	Result.	Remarks.
1	F., 34 years.	Oct. 11th.	4	Oct. 30th.	19	Oct. 12th.	Temperature still raised.	Negative.	Widal's reaction present. No abdominal symptoms, but continuous pyrexia for 19 days.
						Dec. 10th.	42.	,,	
2	F., 1½ years.	Nov. 29th.	15	Nov. 30th.	8 hours.	Dec. 5th.	6	Positive.*	Very mild case with few symptoms. Three members of the family admitted three weeks after, evidently infected from this baby.
3	M., 6 years.	Nov. 3rd.	8	Nov. 11th.	8	Dec. 7th.	26	Positive.	Mild case.
						,, 15th.	34	,,	
						,, 21st.	40	Negative.	
4	M., 20 years.	Nov. 5th.	14	Nov. 19th.	14	Dec. 21st.	31	Negative.	—
5	F., 29 years.	Sept. 16th.	24	Oct. 20th. Relapse Oct. 24th. Temperature again normal Nov. 15th.	34	Nov. 9th.	Pyrexia present.	Positive.	Case characterised by prolonged temperature. No severe symptoms.
						,, 24th.	9	,,	
						Dec. 2nd.	17	,,	
						,, 15th.	30	,,	
						,, 19th.	34	,,	
						,, 28th.	43	Negative.	
6	F., 19 years.	Oct. 25th.	7	Nov. 22nd.	28	Dec. 27th.	35	Positive.	—
						Jan. 3rd.	42	Negative.	
7	F., 45 years.	Sept. 10th.	25	Oct. 10th. Relapse Oct. 22nd. Temperature again normal Nov. 12th.	30	Nov. 25th.	13	Positive.	Prolonged case with marked diarrhœa and hæmorrhage.
						Dec. 2nd.	20	,,	
						,, 12th.	30	,,	
						,, 19th.	37	,,	
						Jan. 3rd.	52	Negative.	
8	F., 7 years.	Oct. 3rd.	7	Oct. 16th. Temperature again elevated Dec. 7th owing to abscess.	13	Dec. 30th.	Pyrexia present.	Negative.	Large abscess which contained staphylococci.
9	F., 20 years.	Oct. 2nd.	6	Oct. 16th.	14	Nov. 14th.	29	Positive.	Mild case with little diarrhœa.
						,, 22nd.	37	,,	
						,, 29th.	44	,,	
						Dec. 5th.	50	,,	
						,, 12th.	57	,,	
						,, 20th.	65	,,	
						Jan. 2nd.	78	,,	
10	M., 12 years.	Nov. 13th.	9	Nov. 24th.	11	Dec. 26th.	32	Positive.	Mild case.
						Jan. 2nd.	39	Negative.	
11	F., 11 years.	Sept. 16th.	9	Sept. 24th.	8	Oct. 20th.	26	Positive.	Very little diarrhœa throughout illness.
12	M., 8 years.	Sept. 6th.	11	Sept. 25th.	19	Oct. 15th.	20	Negative.	Diarrhœa well marked.
13	M., 31 years.	Aug. 17th.	14	August 19th. Relapse Sept. 10th. Temperature again normal Sept. 19th.	2	Oct. 12th.	23 (dating from end of relapse).	Negative.	—
14	F., 7 years.	Sept. 17th.	3 (?)	Sept. 27th.	10	Oct. 20th.	23	Negative.	—
15	F., 22 years.	July 20th.	18	August 6th. Relapse August 15th. Temperature again normal Sept. 8th.	17	Oct. 2nd.	24	Positive.	Diarrhœa well marked.
						,, 7th.	29	Negative.	
16	M., 6 years.	Sept. 13th.	13	Sept. 25th. Transient rise on Oct. 2nd, lasting only 24 hours.	12	Oct. 24th.	28	Negative.	—
17	M., 7 years.	Sept. 15th.	17	Sept. 21st.	6	Oct. 17th.	26	Positive.	—
						Oct. 25th.	34	Negative.	
18	M., 12 years.	Sept. 29th.	14	Oct. 4th.	5	Oct. 31st.	27	Negative.	Mild case.
19	F., 9 years.	Sept. 7th.	4	Sept. 27th.	20	Oct. 30th.	33	Negative.	—

* Endo's and Wroblitzki's media used. Subcultures made on potato, milk, peptone, and McConkey's media. Cultures agglutinated with known typhoid serum.

Number of case.	Sex and age.	Date of admission.	Day of disease on admission.	Date of normal temperature.	Duration of pyrexia after admission in days.	Dates of examination of stools.	Number of days of normal temperature preceding examination of stools.	Result.	Remarks.
20	M., 35 years.	Aug. 23rd.	13	Sept. 18th.	26	Oct. 12th.	24	Positive.	Severe case.
						,, 18th.	30	,,	
						,, 24th.	36	,,	
						,, 28th.	40	,,	
						,, 31st.	43	,,	
						Nov. 8th.	51	Negative.	
						,, 10th.	53	,,	
21	M., 13 years.	Oct. 4th.	10	Oct. 18th.	14	Nov. 20th.	32	Negative.	—
22	F., 18 years.	Oct. 2nd.	6	Oct. 24th.	22	Nov. 17th.	24	Positive.	—
						,, 22nd.	29	,,	
						Dec. 2nd	39	Negative.	
23	M., 23 years.	Aug. 31st.	9	Sept. 30th.*	30	Nov. 16th.	14	Positive.	Multiple abscesses due to staphylococci. Got up Nov. 8th.
						,, 24th.	22	,,	
						Dec. 2nd.	30	Negative.	
24	M., 7 years.	Oct. 10th.	8	Oct. 19th.	9	Nov. 20th.	32	Positive.	Up in clothes Nov. 21st.
						,, 29th.	41	Negative.	
25	F., 6 years.	Oct. 5th.	9	Oct. 14th.	9	Nov. 25th.	42	Negative.	Up in clothes Nov. 19th.
26	M., 30 years.	Sept. 30th.	15	Oct. 24th.	24	Nov. 20th.	27	Positive.	Up in clothes Nov. 13th.
						,, 29th.	36	,,	
						Dec. 5th.	42	Negative.	
27	M., 23 years.	Oct. 16th.	6	Nov. 5th.	20	Dec. 7th.	32	Negative.	Up Nov. 27th.

* An irregular pyrexia, due to the abscesses, commenced on Oct. 7th, the temperature again becoming normal on Nov. 2nd.

keep patients until assurance is made that they will not become carrier cases; several examinations showing negative results are necessary to make certain that the patient will not become a carrier, as it is well known that carriers often pass the bacilli intermittently.

Some importance may eventually be ascribed to discovering the period when a patient ceases to pass the bacilli, as probably it will be found that these cases are free from the liability to have relapses. I cannot, however, give any proofs of this at present. A glance at the table will show the variability in the period when a negative result was obtained.

The persistence of infection bears no relation to clinical signs; the patient in No. 9, who showed typhoid bacilli in the stools 78 days after the temperature was normal, was a mild case with little diarrhœa.

A consideration of the table tends to show that carrier cases do not have such a marked influence on the spread of the disease as might be thought possible, because "return" cases of enteric fever are very rare, and as most hospitals discharge their patients without a bacteriological examination of the stools a fair proportion must be sent home with typhoid bacilli still present in the intestines.

I am indebted to the medical officer of health, Dr. Lauder, for permission to publish this article.

Southampton.

Dr. George M. Robertson, lecturer on mental diseases in the University of Edinburgh, and physician-superintendent of the Royal Morningside Asylum, Edinburgh, and Dr. A. R. Urquhart, physician superintendent of James Murray's Royal Asylum, Perth, have been elected corresponding members of the Society of Psychiatry of Paris.

THE WEST HAM AND EAST LONDON HOSPITAL.—At a large public meeting of the governors and subscribers of this charity, held in the council chamber of the Town Hall, Stratford, by kind permission of the mayor and corporation, the alteration of the name of the institution to "The West Ham and Eastern General Hospital" was unanimously confirmed. The hospital is now in every sense of the term a general hospital, having surgical and medical wards for both male and female cases, as well as ample accommodation for dealing with accidents.

SPOROTRICHOSIS.

BY E. VON OFENHEIM, M.D. LEIPZIG, M.R.C.S. ENG., L.R.C.P. LOND.

THE disease known as "sporotrichosis" seems to be sufficiently rare to justify the publication of notes upon a case which just recently came into my hands. Further history of the case and the effects of the therapy may allow a more complete picture of it to be given.

The patient, a female, aged 18¾ years, had been quite a healthy child up to six years ago. The family history does not show anything of importance; neither tubercle nor specific disease can be traced. Six years ago the patient had a glandular swelling on the left side of the neck, which was operated upon, the glands being removed. She was quite well after that until about three years ago, when the whole of her neck—that is, probably all the cervical glands—began to swell, the condition being diagnosed as Hodgkin's disease. After a few months a diagnosis of tubercular glands was made by another medical man, and the patient was submitted to X ray treatment, which apparently at one time caused the glands slightly to decrease in size, but they rapidly increased again, and the prolonged X ray treatment did not seem to have any further effect.

The case came into my hands on Nov. 18th, 1910, and from the opsonic index to tubercle (which varied between 1·22 to 0·73) I concluded that the diagnosis of tubercle must have been the correct one, and the patient was submitted to a course of inoculations with B.E. tuberculin. At the same time there was a fairly hard, not very tender, swelling over the middle third of the left tibia which was sometimes painful, especially at night. This swelling had existed (as I was informed) since September, 1910.

The three possibilities which were taken into consideration at the time were: (1) tubercular periostitis or osteitis; (2) gumma; and (3) osteo-sarcoma. No. 1 seemed to be the most probable one in consideration of the condition of the glands of the patient. To exclude No. 2 a Wassermann test was made which proved negative. To decide No. 3 the effects of the tuberculin treatment could be watched. There existed also a sinus behind the left ear, above the mastoid process, the result of an incision designed to lead

to a broken-down gland, but from which no other discharge but blood was obtained.

By Feb. 4th the glandular swellings in the neck had considerably decreased, the circumference of the neck being diminished by 1½ inches; at the same time the swelling on the tibia was more marked and was apparently fluctuating. On that day, with an aspirating needle, about 2 c.c. of blood were withdrawn from that swelling, and were planted out on agar, serum agar, and broth. The microscopical examination showed only blood and no organisms could be discovered by direct examination. The leg felt very comfortable for the next few days, but became very painful again, and by Feb. 15th the swelling had markedly increased and was distinctly fluctuating and very tender. It was again aspirated, but only some very thick, dark-brown, tarry fluid was obtained with great difficulty, which proved on examination to be altered and partly congealed blood. This appearance, taken together with the fact that in spite of the glands going down under the tuberculin treatment, the swelling of the tibia had increased, made me suspicious of malignant disease.

Cultures were made again from the fluid withdrawn, and on the next day the patient was removed to St. John's Hospital, Lewisham, S.E., where the swelling was opened by a longitudinal incision of about 4 inches. Congealed blood only was found on the tibia. The bone itself was stripped of the periosteum to an extent of about 2 inches, and two small sinuses were noticed leading into the bone. The bone was opened, and it was found that these two sinuses led into a cavity of about ¼ inch in diameter and 1½ inches long. This cavity contained some semi-gelatinous substance, but was not in any communication with the medullary cavity. It was afterwards plugged with iodoform. The wound was stitched up and only drained at the lower angle. Since then the wound has united by first intention, and there was never any pus or discharge of any kind. The temperature, which showed before the operation variations between 97·6° and 100·5° F., went up after the operation for several nights to 103° and even 104°, the patient feeling quite well in spite of it.

The cultures which were taken at the time of the first aspiration (Feb. 4th) have grown within seven days a few small colonies which microscopically looked like yeast, and I supposed that I had in those cultures an accidental yeast contamination, as yeast infections are very rare, although there are several of them on record in the literature.

The cultures which were taken at the time of the second aspiration have grown in six days the same organism—that is, a great number of a Gram-positive, round or oval-shaped organism almost of the size of a red blood corpuscle, some of which showed some differentiation of the protoplasma. Subcultures, which were made on various sugary media, showed that the organism, unlike any yeast, did not produce alcohol, nor acids, nor any kind of gas. Milk which was planted out with it did not coagulate, nor was it altered in its reaction in any way in ten days, and the organism did not seem to grow well in it. Subcultures, which were planted out on glucose agar, grew much more readily, and after two or three generations they are growing now within 24 to 48 hours. At room temperature (20° C.) they seem to grow better than in an incubator at blood temperature. From these subcultures smears were stained in various ways, in some of which a mycelium was discovered and to which the above described round-shaped spores were hanging in clusters. Cultures which were planted out with a platinum wire, which was inserted into the sinus behind the ear of the patient, have grown exactly the same organism in pure culture.

Although it would be rash to make an absolutely definite statement, I feel convinced that this is a case of sporotrichosis, as described by Beurmann, Ramond, Brodier, Gastou, and others; and so far the bacteriological appearance is in accordance with the descriptions given by Duval and Monier-Vinard. The one point in which this case differs somewhat from those which have come to my knowledge up to now is the localisation of the disease in the bone, but there are some typical cutaneous lesions in this patient as well, of the existence of which I was only informed after the operation, as the patient did not attach any importance to them herself. These cutaneous lesions are on the external surface of the right thigh—not the same leg on which the bone lesion was—and consisted of three little ulcers, two of which are skinned over and only show a purple discolouration, whilst the lowest one is still open, showing a tendency to granulate, but does not discharge. Cultures from these lesions have been taken and have grown the same organism as from the other lesions in pure cultures.

A good many cases of sporotrichosis have been diagnosed and published in France, in America, and a few also in Germany; but as far as I have been able to look through the literature in this short time I believe that the above is the first case of this kind to be recorded in England.

Weymouth-street, W.

TREATMENT OF RODENT ULCER BY CALCIO-PHOSPHATE OF URANIUM.

BY ALBERT CHURCHWARD, M.D. BRUX., M.R.C.P. EDIN., M.R.C.S. ENG.

IN the treatment of rodent ulcer there has been during the last few years a great advance in our knowledge of the subject, and consequently much benefit to our patients. There yet remains, however, a wide scope for new methods, and I am anxious to put before my colleagues in the profession a new treatment which in my hands has, so far, proved an unqualified success. Up to the present time I have only treated three cases of this disease with this remedy, and therefore feel much diffidence in bringing the treatment before the notice of the profession generally, my excuse, if any is necessary, being that two cases are completely cured and the third is getting rapidly well.

The mode of application and treatment generally is simple and inexpensive, in which respect it differs from radium bromide. Whilst experimenting with calcio-phosphate of uranium I found this mineral to possess great radio-activity. This name was given to me by Dr. George Prior, Keeper of Minerals at the British Museum Natural History Museum, South Kensington, after having examined my specimen of mineral and comparing it with others in the museum. As I had no means to measure the radio-activity of the mineral I had some radiographs taken, two of which I here submit. Fig. 1 shows the amount of "light" emanations given off during an exposure of three hours. Fig. 2 is the shadowgraph of a coin taken through half an inch of wood with six hours' exposure. The radiograph and shadowgraph here depicted were procured: (1) by putting an ordinary photographic sensitised plate in a dark room and leaving the mineral upon it for three hours; and (2) placing a piece of wood half an inch thick over the coin which rested on the plate and the mineral lying on the wood—exposure six hours.

The following are the cases treated:—

CASE 1.—A man, aged 47 years, had a small rodent ulcer on the right side of the nose, had noticed it for some months and treated it with boric acid and ung. zinc. oxidi himself, but as no improvement took place he came to me in September last. An exposure of three hours a day cured this in five weeks.

CASE 2.—A woman, aged 50 years, had been treated for rodent ulcer for some months with X rays. She stated that she was no better but rather worse than when treatment was commenced. She also came to me last September. An exposure of four hours a days cured this in nine weeks.

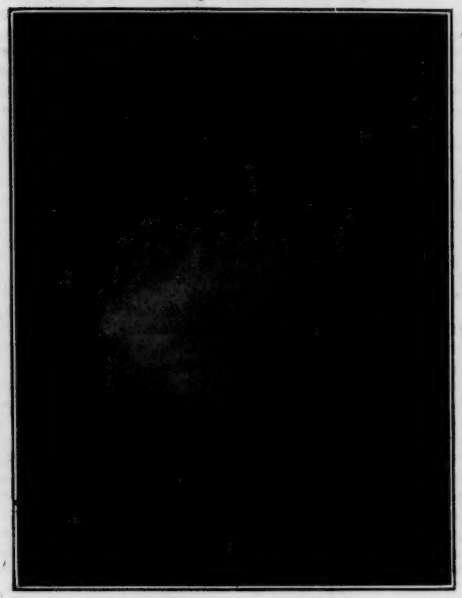
CASE 4.—The patient, a woman, aged 49 years, is partially paralysed. She is suffering from tumour in the brain, and developed rodent ulcer on the left side of the nose, which was treated with X rays for four months. She did not improve, but became rapidly worse. I began treating it four months ago, with exposure of two hours a day for the first month, three hours the second month, and then four hours a day. It is now almost well, and about one-tenth of the original size (see Fig. 3). The healed tissue shows how large this ulcer was before I began treating it.

I much regret that Cases 1 and 2 refused to be photographed, but the photograph of No. 3, which was taken in my presence by Mr. Norton Collins of South Norwood, shows the present condition of the patient.

I am also using this treatment in two cases of inoperable cancer, but have not yet had sufficient time to say if any permanent benefit will result.

Before entering upon treating any case with the mineral it is absolutely necessary to prove how much radio-activity

FIG. 1.



Showing amount of "light" emanations in three hours.

FIG. 2.

Showing shadow of coin through ½ inch of wood (6 hours' exposure).

it possesses, as some specimens possess very little, whilst others contain a large amount. From experiments I have made I should say that the mineral should contain as much radio-activity as that shown in the radiograph (Fig. 1) in order to be effective. This I regard as the *lowest* standard of efficiency.

The mode of treatment is simple. After proving that your calcio-phosphate of uranium is sufficiently radio-active, as per above, place a piece of lint over the ulcer and let the mineral rest on this for three hours each day, which after a week can be increased to four or five hours. If any dermatitis is produced in the surrounding tissues leave the treatment off for two days, and then apply for an hour, or two hours only, for the first week, after which increase the time gradually. Dermatitis in the surrounding tissues was set up once only in my cases after an exposure of five hours.

It is wise to wrap a piece of lint or bandage round the mineral and to keep this on permanently because the yellowish-green crystals of the calcio-phosphate of uranium are easily broken and detached from the matrix on which they are deposited, and would therefore depreciate the radio-active power of the mineral.

FIG. 3.

The two "black spots" here portrayed show portions of the ulcer not quite well; the lighter portion shows where the ulcer has healed. The healed part is much larger than depicted above, but it has healed so well that there is so little difference in the surrounding tissues that photography does not show it.

The value of this treatment is this: 1. It is not expensive, as is the case with radium bromide, and therefore within the means of any general practitioner. 2. The mode of treatment is so simple that patients can be treated in their own homes, the case being left in charge of a nurse after the general practitioner has seen that the mineral is properly applied and in the position required.

In placing this treatment before my brother medical practitioners, more especially those who are unable to procure radium-bromide or "snow," I feel sure that they will find it quite as satisfactory as the other treatments, although I admit that a little more patience is required. It is less expensive, and last, but not least, the "scar" left is certainly less than in any other treatment I have seen.

Anyone interested in this treatment can see the subject in Case 3 by communicating with me, and it is certainly a severe test of the efficiency of the treatment owing to the low standard of general health of the patient on account of her other ailments.

South Norwood, S.E.

AN UNUSUAL CASE OF INTESTINAL OBSTRUCTION.

BY E. A. WRIGHT, M.B., B.C. CANTAB., D.P.H.

THE patient, an unmarried girl aged 21 years, was admitted to the Romford Cottage Hospital on Oct. 13th, 1910. She complained of abdominal pain and vomiting, and stated that the bowels had not acted for several days, in spite of repeated injections. On examination the patient presented a pale, sallow appearance; tongue moist and clean; pulse 116, temperature 97·5° F., and respirations 24 to the minute. The heart and lungs were normal. Abdominal examination revealed the presence of a hard rounded lump in the right epigastric region of about the size of an orange. This was tender to deep pressure, and did not move with respiration. Per rectum a hard, small, non-tender moveable mass could be felt. The patient gave a history of a similar attack a year ago which was relieved by enemata. She also stated that she had suffered from constipation with frequent attacks of vomiting for some years, and had been under treatment at a London hospital for indigestion. A diagnosis of fæcal impaction was made; hot poultices to the abdomen, oil and soap enemata, and subcutaneous injections of atropine sulphate were tried. During the first 24 hours of this treatment the patient's condition improved; the vomiting ceased and the pulse-rate dropped to 108, the temperature remaining normal. No action of the bowels was obtained. On Oct. 16th the vomiting started again and the pulse-rate rose to 120. Eserine sulphate (1-20th grain) was given subcutaneously, and the faradic current was applied to the abdomen. No relief was obtained from this treatment, and on the 17th the patient's condition became much worse, and laparotomy was decided on.

The abdomen was opened by a 4-inch incision 1 inch to the right of the middle line. A coil of distended small intestine and a portion of omentum at once protruded through the wound. The lump previously felt was explored with the hand and found to be hard, smooth, and rounded, and to extend a considerable distance upwards and to the left. The abdominal incision was enlarged and the cause of the obstruction in the intestine was sought for. A firm lump about 3 inches long was found completely blocking the lumen of the small intestine; beyond this point the intestine, large and small, was quite empty. The peritoneal cavity was shut off by packing, and the bowel was opened by a small incision. The obstructing mass was found to be hair tightly matted together. This was removed, and the wound in the intestine was closed by Lembert's sutures. The other lump was then examined and found to be in the stomach, which organ it completely filled. The stomach was opened by an incision about 3½ inches long in the anterior wall, and the mass was removed with some difficulty. This also was found to consist of an enormous mass of tightly matted hair, which was found subsequently to be of the following weight and size: weight, 2 lb. 12¾ oz.; length, 11¼ inches; and circumference, 10½ inches. The wound in the stomach was treated in a similar manner to that of the intestine. The peritoneum was irrigated with warm saline solution, and a quantity was left in. The peritoneum and muscular layer were taken up in one layer of sutures, owing to the gravity of the patient's condition, and the abdomen was closed.

The patient rallied well from the operation, and her condition on the following day was much improved. The bowels were acting copiously and there was no vomiting. The pulse-rate continued high. Owing to severe diarrhœa, with frequent and very offensive stools, it was impossible to feed per rectum, and the patient becoming dangerously exhausted feeding by the mouth was started on the third day after the operation. This was followed by a temporary improvement, but the diarrhœa returned with increasing severity and continued in spite of treatment till Oct. 23rd, six days after the operation, when the patient died.

The above case seems to me an interesting one for several reasons. 1. Although hair masses in the stomach have been fairly frequently described, they are rare as a cause of intestinal obstruction. 2. The enormous size of the mass in the stomach with the comparatively slight symptoms it had caused. 3. The mental condition of the patient. A large proportion of cases of this condition described have been lunatics. This patient was a bright, intelligent girl, with no history of hysterical attacks. Her relatives tell me, however, that for many years she had been in the habit of pulling and biting at her hair when reading or when her attention was otherwise engrossed, showing that the habit had become almost an unconscious one.

Romford.

INFANTILE SCURVY IN A CHILD FED ON STERILISED MILK.

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With Remarks by J. WALTER CARR, M.D. LOND., F.R.C.P. LOND.

ON May 12th, 1910, a female infant, aged 7 months, was admitted to the Victoria Hospital for Children, Chelsea, under the care of Dr. Carr. A few days previously her mother had noticed that the child's legs were swollen and painful. This commenced in the right knee, the left being affected two days later. The swellings were very tender and painful, and the child cried whenever the limbs were touched or moved. She was very restless at night and perspired freely about the head. There was no vomiting. The bowels were regular, the motions being of normal colour. There was no reason to suspect any syphilitic taint. The child was one of twins, the other being pale and delicate, but showing no signs of scurvy, although fed in the same way. For the first six weeks of life the child had been breast-fed, and after that was brought up entirely on Borough Council sterilised milk, according to directions and under supervision. The mother seemed to be an intelligent and careful woman.

Condition on admission.—A pale, fairly nourished child; weight 13 pounds. Fontanelle admitted three fingers. The tongue was furred and the mouth rather dirty. There were no teeth, and consequently no swelling of the gums. Well-marked rickety rosary and some enlargement of the epiphyses of the long bones. No indication of intra-orbital hæmorrhages. Temperature 100° F.; pulse 140; respiration 32. Heart and lungs: Normal. The liver reached one finger's breadth below the costal margin; spleen not felt. Urine: Acid; no albumin, sugar, or blood. Limbs: Both thighs and legs were very much swollen and extremely tender. The veins showed up clearly through the skin, which was tense and shiny. The swelling was more marked in the left leg, and especially well felt as a hard mass in the popliteal space. The child would not move her legs, and cried if they were touched. Arms: Nothing abnormal. An X ray photograph revealed typical large subperiosteal swellings situated at the lower ends of both femora, more especially the left, and some swelling of the shafts above; this extended to the lower end of the diaphysis on each side.

Treatment.—The child was given fresh milk and water in the proportion of 4:1 at intervals of 2½ hours for the first four days. Fresh orange juice (1 ounce) and raw meat juice (4 drachms) were also given daily. On May 16th undiluted milk was given in 5-ounce feeds, with sodium citrate, 6 grains, to each feed. On June 3rd the raw meat and fruit juices were stopped, and one feed of Mellin's food was allowed daily.

Result.—Within a week the swelling began to subside and the child made attempts to move her legs; at the end of two weeks there was free movement and no tenderness. The temperature remained irregular, rising at times to 99°. This was probably due to absorption of the effused blood. At first there was a fall in the weight to 12 pounds 14 ounces, but afterwards a steady increase to 14 pounds. X ray photographs, taken at intervals, showed a gradual decrease in the swellings. The child left the hospital on June 30th, and her condition was then very satisfactory in every respect.

Remarks by Dr. CARR.—The vast majority of cases of infantile scurvy occur in children who have been fed for at least several weeks exclusively, or almost entirely, either on patent foods or on condensed milk. It is, however, very important to recognise that the disease is met with,

fortunately only rarely, in infants who have been fed on boiled or sterilised milk, because if even only a very few well-marked cases occur under these circumstances, it necessarily follows that there must be a much larger number of children who suffer from slighter manifestations, the real nature of which is likely to pass unnoticed unless the possibility of the occurrence of infantile scurvy is considered.

It is easy never even to think of the possible scorbutic origin of many infantile ailments. A few years ago I was attending the infant son of a medical man who had been fed for some months, with the utmost care, on sterilised milk only. Not until the sudden occurrence of an acutely painful swelling in connexion with the right femur, followed by rapid recovery as soon as fresh milk, raw meat juice and fruit juice were given, indubitably showed the child to be suffering from scurvy, did I realise that the general malaise, the anæmia, and the slight tenderness on movement, which had been present for some time before, were merely early manifestations of the same disease. I was obsessed at the time with the idea that an infant not fed on patent foods or condensed milk was practically safe from scurvy.

We do not know as yet why so few of the many children who are fed on sterilised milk develop scurvy. Probably the essential factor is prolonged sterilisation or prolonged boiling of the milk; the danger from milk which has only just been raised to the boiling point for a very short time seems fortunately to be infinitesimal. Naturally, also, the risk is greater when extreme care is taken that the child has nothing except sterilised milk. Lastly, the occurrence of some other illness may determine the development of marked scorbutic manifestations in an infant who might otherwise escape. In the child of the medical man just referred to, an attack of influenza, followed by some middle-ear trouble, seemed to act as the exciting cause. It is interesting to note that the child whose case is here recorded was one of twins, and that the other twin—fed exactly in the same way—although delicate, appears to have escaped any obvious manifestation of scurvy. Evidently the determining factor in producing the characteristic symptoms must be a very slight one.

Another point worth noting is the possibility of mistaking a subperiosteal swelling, due to hæmorrhage resulting from scurvy, for a sarcomatous growth. This grave mistake is especially liable to occur should the swelling be one-sided, and the child still toothless so that the gums are not affected. The X ray appearances, as in the present case, may closely simulate those presented by a subperiosteal sarcoma. Although I have not myself met with this difficulty in diagnosis, I have heard of cases in which the question of amputation of the thigh has been seriously entertained for a swelling of the femur, which, from its characters and from the skiagram, was regarded as malignant, but which subsequent developments showed to be due simply to infantile scurvy.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

MEDICAL SECTION.

Some Observations on Low Blood Pressure.

A MEETING of this section was held on Feb. 28th, Dr. J. MITCHELL BRUCE, the President, being in the chair.

Dr. W. EDGECOMBE read a paper entitled "Some Observations on Low Blood Pressures." He said that the results of a long series of observations had been examined to determine the average level of blood pressure both morning and evening, and the average daily change to serve as a basis from which might be noted deviations consequent upon special procedures. The effect of various drugs had been tried, and as the chief object was to test whether they produced a sustained rise in blood pressure, the method of taking morning and evening readings was preferred to that of observing the immediate effect of the drug. The latter, however, was also done in certain instances. Excluding cases of acute illness with febrile disturbance—the acute specific fevers, &c.—the following were some types of disorder which frequently presented a low blood pressure: 1. Subjects with poor circulation, cold hands and feet, and liable to chilblains. Dr. Edgecombe had met with several examples in which the systolic blood pressure rarely rose above 95 mm. Hg. By means of baths, massage, and exercise a temporary rise might be effected, during the maintenance of which the objective and subjective signs of defective circulation improved manifestly; but it was difficult to effect an enduring rise in the general level of blood pressure in those cases, for they were prone, on cessation of treatment, to relapse to their former state. 2. Cases of pure neurasthenia, having as their prominent characteristic profound fatigue, either somatic or psychical, or both. Whether the low blood pressure in those cases of neurasthenia was the cause or the effect of the extreme fatigue it was not easy to say. The probable sequence of events was a lowering of blood pressure by toxic or other causes, and it was the extreme feebleness of the circulation that gave rise to the subjective sensation of intense fatigue. It was certain that a rise in blood pressure was an almost invariable accompaniment of improvement. In marked contrast to those was the irritable type of neurasthenic—the "neurotic", individual, who was frequently not a true neurasthenic, but a psychasthenic or a hypochondriac. In those cases the pulse was usually quick and irritable, and the blood pressure subject to great variation, but generally above the normal, and sometimes markedly so. 3. Tobacco poisoning. 4. In cases of dilated heart, with or without valvular disease, the pressure was usually found low, and a rise in pressure was one of the indications of the progress of the case towards recovery. 5. Fibrositis. Many examples of the so-called gouty or rheumatic manifestations of lumbago, sciatica, and neuritis showed a blood pressure somewhat below normal. 6. Phosphaturia. 7. Arthritis deformans. Contrasted with the ease with which a high blood pressure might often be reduced, the permanent raising of a low pressure was a matter of greater difficulty. Fortunately it was seldom necessary, were it possible, to raise the blood pressure to a great extent; a relatively small rise was, in most cases, coincident with marked amelioration. To effect a rise, non-medicinal measures, such as diet, exercise, change of air — for example, to high altitudes,—and hydrotherapeutic procedures were to be preferred to drug treatment. With regard to diet, an excess of meaty food should be prescribed, with a corresponding diminution of the starchy elements. Exercise, carefully graduated, improved the tone of the heart and vessels and raised the pressure; while altitude and the baths mentioned had a marked effect in the same direction. If drugs were required, pituitary extract would seem to have the most powerful and rapid effect; but Dr. Edgecombe had little or no experience of its continued use over long periods, and would rather hesitate to give much of so powerful a substance lest unlooked-for late results accrued of a harmful character. Next in potency would be caffeine, to be given only if the patient were not an excessive tea drinker. Calcium lactate appeared to be moderately effective, and strychnine was disappointing. Digitalis should be reserved for cardiac cases.

A discussion followed, in which Dr. C. O. HAWTHORNE, Dr. NATHAN RAW, Dr. F. H. HUMPHRIS, Dr. O. K WILLIAMSON, Dr. R. HUTCHISON, Dr. F. W. PRICE, Dr. W. BEZLY THORNE, and the PRESIDENT took part, after which Dr. EDGECOMBE replied.

BALNEOLOGICAL AND CLIMATOLOGICAL SECTION.

The Climatic and Balneological Treatment of Neurasthenia.

A MEETING of this section was held on March 1st, Dr. T. F. GARDNER, the President, being in the chair.

Dr. W. RINGROSE GORE (Llandrindod Wells) read a paper entitled "The Climatic and Balneological Treatment of Neurasthenia." He said: Balneological treatment, although effective in removing the cause in most cases of neurasthenia, is still only to be regarded as complementary to other methods. In no disease are the details of general treatment of greater importance than in neurasthenia. One of the most essential factors in treatment is time, and many failures result from non-appreciation of this fact. It is very important to impress this upon patients; otherwise they become unduly depressed, when a short course of

treatment fails to effect a cure. Patients in a markedly debilitated state of health require rest in bed, combined with massage and careful dieting, before being subjected to spa treatment. On the other hand, neurasthenics in whom the disease is dependent on some chronic abdominal condition, such as gall-stones, chronic appendicitis, or some abdominal displacement, should be recommended spa treatment before and not after operation. Practically all cases of neurasthenia have a toxic basis and a very large number of cases are due to, or associated with, some form of digestive trouble. It is in these cases that properly regulated spa treatment is of signal value. At Llandrindod Wells the chief treatment consists in the drinking a natural saline water every morning. The action of this water is mainly one of gastro-intestinal lavage, which aids the elimination of toxic products, the origin of which is frequently to be traced to the digestive canal. This saline, being practically isotonic with normal blood serum, is not retained in the stomach but passes through the pylorus into the small intestine almost as quickly as it is taken. Owing to the stimulating effect of the salt on peristalsis it acts as a mild aperient, but this effect is in no way debilitating, inasmuch as no flow of serum from the bowel is induced. The effect of this treatment is very rapid. The appetite increases, the digestion improves, and the patient on appropriate diet almost immediately puts on weight. There is also at Llandrindod a chalybeate spring which is prescribed for its tonic effect. The constituents of natural mineral waters have an as yet unexplained effect upon the body cells. This has been ascribed to radio-activity, but may be in some way due to a renewal of the salts in the blood by others in a more active chemical condition. The external methods of treatment at Llandrindod are common to those in practice at most spas, and great discrimination is required in their application. High-frequency currents, douches of different kinds, and reclining baths at various temperatures are all valuable accessory methods of treatment, and flushing of the colon, as practised at Plombières, is beneficial in cases where mental depression is a prominent symptom. The choice of climate depends to a great extent upon the stage of the disease and the age of the patient. In most cases a preliminary rest cure is advisable, and subsequently a stay at a quiet bracing station should be recommended. Mountain or sea air is to be preferred unless they induce insomnia. In the summer it is easy to find a suitable climate in the British Isles, but in winter difficulty arises, inasmuch as neurasthenics require an open-air life. Young patients, especially those on the road to recovery, do well at an Alpine resort so long as they are content to keep to the milder forms of exercise. A sea voyage to the West Indies provides an open-air life under agreeable conditions of temperature for elderly patients. The Italian Riviera, Pau, Algeciras, and Ronda are all suitable stations in southern Europe. Algiers is a good winter resort, and in Egypt the stations round Cairo are to be preferred to those of Upper Egypt as being more bracing.

Dr. C. W. BUCKLEY (Buxton) said that there was one important mode of treatment which was of extreme value in neurasthenia, especially if accompanied with restlessness and insomnia—namely, the cold pack at a temperature of about 90°. It was doubtful whether there was any other measure of equal value for such cases. Referring to climate, the value of sea voyages was open to doubt, except in the slightest cases, as the monotony and want of occupation tended to increase morbid introspection.

Dr. PRESTON KING (Bath) considered that in the treatment of neurasthenia change was all important, with rest, and, as far as possible, absence of worry. Physical disease, as colitis, arthritis, or affections of the heart, must be treated. In colitis the Plombières douche was useful, but it was after all only to be recognised as a glorified enema. Too much had been claimed for the latest "cure." The same might be said of the Nauheim baths. These did good in some quick pulse cases, not by virtue of some occult action of gas bubble upon the skin, but rather by the tepid bathing aided by suggestion. Properly used, suggestion was a distinct help to cure, not only in neurasthenia, but in all illness.

Dr. W. EDGECOMBE (Harrogate) regretted that the author of the paper had not defined clearly what was meant by the term neurasthenia. The more severe cases, characterised by profound fatigue, formed a well-marked group, the main factor in the treatment of which was rest. The milder cases were so ill-defined and protean in their manifestations that it was impossible to formulate definite rules for treatment. Each case must be treated on its merits; the tact and personality of the physician in charge were not the least important factors in procuring a good result.

Mr. WILLIAM ARMSTRONG (Buxton) considered that neurasthenia depended upon disturbance of the sympathetic nervous system—in some cases preceded by, in nearly all followed by, auto-intoxication. He strongly advocated direct treatment of the cervical ganglia of the sympathetic in minor cases by means of ionisation of the neck: in more severe ones by anæsthetic ionisation followed by light application of the electric cautery. For the auto-intoxication nothing was so helpful as the drinking and inhalation of strong radium emanations in water (8000 machi units per litre), which greatly increased nervous force and also strongly stimulated the excretion of waste products, especially increasing the output of carbonic acid.

Mr. W. T. REES (Llanwrtyd Wells) alluded to the fact that preceding speakers had not mentioned influenza as a possible cause of neurasthenia, but in his opinion cases of neurasthenia had been much more numerous since the advent of influenza in this country. He concurred with the previous speakers that it was desirable to have a definite conception as to what conditions should be included under the term neurasthenia. In the absence of any authoritative pronouncement on the matter, he had for himself adopted the meaning of the word, from its Greek derivatives, which signified lack of nerve force. The term neurotic, on the other hand, he had always considered as applicable to a highly excitable and unstable state of the nervous system, associated with exaggerated reflexes.

Dr. F. G. THOMSON (Bath) was of opinion that the first essential in the treatment of neurasthenia was to get a clear mental conception of the nature of the disease. Dr. Gore's statement that it was due to gastro-intestinal toxæmia was not borne out by facts. It was not the *bon vivant* who became neurasthenic, but the patient who, after years of anxiety and worry, eventually broke down under the strain. Neurasthenia was the psychosis of exhaustion, and the primary factor in treatment must be complete mental and physical rest. The great majority of severe cases were bad sleepers, and such cases were likely to derive far more benefit from a sedative than from a bracing climate.

The PRESIDENT said he had been asked to say something respecting Bournemouth and its climatic suitability for neurasthenics. He mentioned the various degrees of sedative influences exercised by central Bournemouth, the east and west cliffs, and their applicability for securing sleep. He also mentioned Bournemouth's quiet Sunday as a unique feature of this town, whereby much of the noise and unrest of other places was avoided. He agreed that much in the treatment of neurasthenia depended on the personality of the physician and the wise use he made of suggestion suited to each particular case.

MEDICAL SOCIETY OF LONDON.

Pathological Specimens.

A MEETING of this society was held on Feb. 27th, Mr. CHARTERS J. SYMONDS, the President, being in the chair.

Dr. F. J. POYNTON showed a Heart from a case of Rheumatic Carditis. The visceral pericardium showed the usual shaggy appearance of rheumatic pericarditis. Upon the aortic valve there were minute vegetations, but connected with the mitral valve springing from chordæ tendineæ there was a large vegetation such as is found in malignant endocarditis. The specimen accordingly supported the view maintained by Dr. Poynton that acute rheumatism was an important cause of malignant endocarditis, which was not, in his opinion, always an evidence of a secondary infection in the rheumatic. Another remarkable feature in the case was a pericardial exudation close upon a pint in quantity and blood-stained. The illness occurred in a boy of 7 years who had been ailing indefinitely for two weeks and then developed multiple arthritis. That subsided in three days, when he was allowed to get up. A rheumatic rash appeared, and he was admitted with carditis seven days after the first appearance of arthritis and died six days later from syncope. The rare feature of bulging of the

præcordial intercostal spaces was noted two days before death. There was left pleurisy with effusion. A blood culture during life was not obtained, although the attempt was made. The diplococcus was present in the vegetation near the mitral valve. The specimen resembled the severe experimental carditis that was produced in a rabbit by a virulent intravenous inoculation of the diplococcus. A photograph was published in THE LANCET of Sept. 29th, 1900. The specimen showed also a chorda tendinea. At the same date as the case he now recorded a fatal case of rheumatic pericarditis occurred also at the Hospital for Sick Children, Great Ormond-street. The diplococcus was isolated in pure culture by Dr. J. G. Forbes, the clinical bacteriologist to the hospital, and a subculture was shown.

Dr. POYNTON also showed specimens from a case of Acute Leukæmia in a girl aged 17 years. The total duration of the illness was five weeks. The patient thought at first she had a bad cold with sore throat and swelling of the glands in the neck. She actually continued at her work until Jan. 2nd, and died on the 18th. Between the onset and her admission to hospital the following additional symptoms developed: anæmia, fungating swellings of the gums with great fœtor, and continual oozing of blood. Ulceration of the palate. Weakness and purpura. The specimens showed the fungating gums, a large thymus, petechiæ in the gastric muscle, the marrow in the femur greyish in colour and semi-transparent, and the spleen slightly enlarged.

Mr. A. E. J. BARKER showed the following specimens: 1. Primary Carcinoma of the Cæcum, with a secondary nodule in the sigmoid flexure. ? Implantation from the upper cæcal growth. 2. Carcinoma of the Lower Rectum, with another smaller cancerous ulcer four or five inches higher up. ? Extension along the submucous lymphatics in the sense of Sampson Handley's infection. 3. Extensive Tubercle of the Colon (Hepatic Flexure) removed by operation.

Mr. ERNEST H. SHAW showed six specimens: 1. A case of Carcinoma of the Right Kidney in which there was a large lobulated hæmorrhagic tumour with an elongated flattened kidney stretched over one side of it. The tumour weighed 76 ounces; it was removed by operation from a man, aged 22 years, who had noticed a swelling in the right loin for nine years. Microscopical examination showed a collection of large cells, many of which were vacuolated. In places the cells were arranged in the form of tubules exactly like the tubules seen in a kidney. 2. A case of Carcinoma of the Œsophagus with Secondary Growths in the Liver. There was a large ulcerating growth occupying the œsophagus at about the level of the bifurcation of the trachea. The specimen was from a man, aged 31 years, who presented no symptom of obstruction during life. There was an indefinite history of hæmatemesis occurring about a month before death. Secondary growths were found in the liver and lymphatic glands of the neck, mediastinum, and abdomen. Microscopically the growth was found to be a columnar-celled carcinoma. 3. A case of Columnar-celled Carcinoma of the Liver Secondary to the Œsophagus, the liver weighing 179 ounces. 4. A case of Carcinoma of the Œsophagus Invading the Trachea. There was a large ulcerating growth seen at the middle of the tube extending through the trachea just above the bifurcation. A rod passed through an opening from one tube to the other. The adjoining lymphatic glands were affected by secondary deposits. The specimen was from a man, aged 53 years, who died with septic broncho-pneumonia. 5. A case of Chronic Nephritis affecting a rudimentary left kidney. Both organs were white, firm, and markedly granular. The nephritis was of the glomerular type (contracting white kidney). The organs were from a woman, aged 32 years, who died with infective endocarditis of mitral and aortic valves. She also presented the following lesions: arterio-sclerosis, chronic or old pleurisy, gout, and reducible inguinal hernia. 6. A case of Calcareous Degeneration of the Aortic Valve with Two Segments. There was atheroma of the coronary arteries. The heart weighed 15½ ounces. The left ventricle was dilated and the wall hypertrophied. The left coronary artery showed marked atheroma and narrowing of its lumen. The specimen was from a man, aged 67 years, who died suddenly.

Dr. F. PARKES WEBER showed specimens from a case illustrating the occurrence of prolonged or fatal syncopal attacks in elderly persons. The patient, a rather stout, flabby-looking man, aged 58 years, was admitted to the German Hospital on Dec. 7th, 1910. He had been much exposed to great heat owing to his work as a baker. Six weeks before admission, after an hour's walk, he was suddenly seized with a prolonged syncopal attack. From that time he remained very feeble, had a very weak pulse, and kept to his bed. In the hospital, although the heart's action improved somewhat under treatment, the gangrene progressed, the left leg as well as the right one becoming affected. Both legs showed discolouration up to the knees, the temperature was septic in type, and on Jan. 6th, 1911, the patient died. At the necropsy the coronary arteries were found sclerosed, and in the descending branch of the left coronary artery the channel appeared completely closed. There was much athero-sclerosis of the aorta with an atheromatous ulcer just distal to the origin of the left subclavian artery. In all probability in this case the prolonged syncopal attack with which the final illness commenced, coincided with the sudden complete closure of a portion of one of the already diseased coronary arteries.

Dr. R. C. JEWESBURY showed a heart with Tricuspid and Mitral Stenosis. The tricuspid valve was markedly stenosed, the edges of the septal and infundibular cusps were quite adherent, the edges of the septal and marginal cusps partially adherent, leaving a "button-hole" opening admitting only one finger, the edges of the valve being considerably thickened. The left ventricle was stenosed.

Dr. JEWESBURY also showed a Dilated Œsophagus from a man aged 34 years. The dilatation was uniform throughout its length except at its lower portion where it joined the stomach; that portion was more contracted than normal and would only admit the tip of the small finger. Fluids, however, readily passed through it. As well as being dilated the œsophagus was considerably increased in length; that caused it to deviate laterally from its normal course, and the lower end was directed to the left after it had been crossed by the aorta.

The PRESIDENT showed the following specimens: 1. A specimen from a case of Acute Cholecystitis removed about two weeks after the onset of the attack from a man aged 52 years; it contained a single calculus. A small piece of liver was seen attached to the specimen. The patient recovered without escape of bile. 2. A Gall-bladder containing a solitary stone; there was thickening of the wall. There had been several attacks of cholecystitis. The specimen was from a woman aged 42 years. There was recovery without any escape of bile. 3. A Gall-bladder showing patches of gangrene. The specimen was removed from a man, aged 70 years, who was taken ill on Feb. 7th, 1910, with vomiting, pain, and collapse. The operation was on March 3rd. The recovery was rapid without any escape of bile. There were no calculi in the case. 4. An unusually large Gall-bladder removed from a woman of 43 years. The hepatic surface showed a gangrenous appearance. The gall-stones removed from the gall-bladder were also shown. The patient was taken ill with pain, vomiting, and diarrhœa. There was no history of any previous illness or pain. The gall-bladder reached to the level of the iliac spine. A large stone was impacted in the sacculus seen at the lower end of the gall-bladder and so closed the cystic duct.

Dr. H. M. TURNBULL showed cases of Mesaortitis, apparently an isolated syphilitic manifestation in father and daughter; Mesaortitis in a child aged seven years; Ectopic Chorion Epithelioma.

Mr. T. B. LAYTON showed a specimen of Ununited Fracture of the Tibia and Fibula. He also showed a specimen of Carcinoma of the Skin complicating an Osteomyelitis of the Tibia. The patient, aged 39 years, had fallen 25 years ago. Soon after a large swelling of the leg appeared. Much bone had come away from the wound in the course of time. The limb was amputated below the knee. Microscopic sections showed the condition was carcinomatous.

Mr. LAYTON also exhibited a specimen showing Senile Atrophy of Bone, Fibrous Union of a Fracture of the Femur, and Fibrous Ankylosis of the Knee-joint.

Mr. P. MAYNARD HEATH communicated a case of a Cyst of the Upper Extremity of the Femur. The patient was a boy who was admitted to hospital on Oct. 28th, 1909. One year previous he had fallen and hurt himself in the left groin. Three months later he fell again and broke the neck of his left femur. He was treated

in plaster-of-Paris and had never walked well since. On the day before admission he fell and again broke his femur. On Nov. 17th, 1909, the head of the femur was removed from the acetabulum, as it appeared too small to serve any useful purpose. The upper extremity of the femur was then pushed up into the acetabulum and held in position by a silver wire. The boy was kept in a double Thomas's hip splint for six months. He was now wearing a high boot and walking without crutches.

Mr. HEATH also showed a Post-anal Tumour (? teratoma) from an infant aged nine days. The tumour grew from the cleft between the buttocks just behind the anus and slightly to the right of the middle line by a narrow pedicle. The tumour consisted of a rounded skin-covered mass with two nipple-like processes. It was very soft and elastic.

MEDICAL SOCIETY OF LIVERPOOL.

Lepra.—The Rôle of Reflex Inhibition.—Exhibition of Case.

A MEETING of this society was held on Feb. 23rd, Dr. T. R. BRADSHAW, the President, being in the chair.

Dr. FRANK H. BARENDT read a note on Lepra and exhibited a patient showing the macular type. After having briefly alluded to the nomenclature and history of leprosy, its endemicity in Great Britain during the Middle Ages, he showed on the screen a typical case of the nodular type, and contrasted the two forms of the disease. The patient, by birth a Scotsman, acquired the disease a year ago in South Africa. He first noticed a large anæsthetic patch on the anterior surface of the right thigh, and in the course of six months there appeared patches varying in size in the following sites: right malar region, right side of the nose, chin and lower lip, left pinna, cubital regions, both hypothenar surfaces and gluteal regions. He complained of pain and tingling in the affected areas. In October last he was admitted to the tropical ward of the Royal Southern Hospital under the care of Professor Ronald Ross. Nastin had been administered but with no beneficial result. Locally X rays had been used, especially to the right thigh, the site of the initial patch, and here a distinct improvement was noted, leucocytosis was being produced and nastin would be resumed and the results reported later.—Dr. K. A. GROSSMANN said that the appearance of the patient was not at all that generally met with in the macular form of leprosy. In his experience the colouring of the spots had never been such a deep reddish tint; in the white race they had been pale, mostly towards pink and purple; in the dark races pale, even to white. Nor had he ever seen such a swelling as the coloured part of the lower lip showed. It hardly looked like a mixed form of macular and nodular leprosy. As to treatment, he felt inclined to suggest in this case mercury in large doses.

Professor C. S. SHERRINGTON read a paper on the Rôle of Reflex Inhibition. He said a distinction was drawn between the inhibition which acted upon the skeletal muscles and that which acted on other muscles such as the heart, intestine, and blood-vessels. In these latter cases the muscles were supplied with two kinds of nerves, excitatory and inhibitory, both nerves issuing as efferent from the central nervous system. In the case of the skeletal muscles no efferent inhibitory nerve was provided but only an excitatory efferent—namely, the ordinary motor nerve. But nevertheless inhibition played an even more potent and extensive rôle in controlling skeletal muscles than it did in regard to any other kind of muscle. Its mode of action was, however, always reflex, and it inhibited the muscle by inhibiting the histo-neurone which actuated the muscle. The main purposes which this reflex inhibition served in its control of skeletal muscles were as follows: 1. It cut short the contraction of one set of muscles when another set was called into play. It thus helped, and indeed was an essential factor for, the transition from one reflex action to another. It also guarded and maintained a reflex already in operation by preventing its being interrupted by other stimuli which would disturb it; it did so by inhibiting the influence that those stimuli would otherwise produce on the nerve centres. 2. It graded the degree of intensity of the discharge from nerve centres by diminishing it to any required extent. When two afferent nerves, one excitatory and the other inhibitory, were concurrently stimulated their effects could be so adjusted as to algebraically sum. In this way inhibition made itself apparent as a graduated moderating influence by which the required discharge from any motor centre could be adjusted with delicacy to any required intensity. 3. Reflex inhibition exhibited itself in the taxis of a number of important reflexes, such as those of stepping and respiration and eyeball movements in a form in which, while the protagonistic muscle contracted the antagonistic relaxed, the relaxation being due to central inhibition of the histo-neurones of the latter. This applied apparently universally to true antagonists, but not to pseudantagonists. Pseudantagonists were dealt with by identical innervations. 4. Inhibition was the main means by which rhythmic reflexes were produced; this occurred in the following way; to take, for instance, the rhythmic reflex of stepping. One phase of the rhythmic reflex was excited, and then its very execution produced a stimulus which evoked a reflex inhibition, cutting that phase short and interrupting the action of the stimulus which excited it; the inhibition then was removed in virtue of the movement which caused it having under the inhibition lapsed. The original stimulus thus became operative again. And so the rhythmic reflex was maintained, rhythmically repeated inhibition being a main factor in its production. 5. Inhibition was followed on its withdrawal by a great augmentation of activity of the inhibited centre. This was called post-inhibitory rebound. This post-inhibitory rebound is responsible for one of the two phases of various diphasic reflexes, such as stepping, mastication, respiration, &c. Post-inhibitory rebound was very weak and irregular when the afferent nerves of the muscles had been destroyed. In other words, in tabetic muscles or rather in tabetic spinal centres the normal rebound occurred feebly or not at all. In the tabetic patient its place had to be taken by voluntary effort. 6. The drug strychnine had as its peculiar effect the conversion of reflex inhibition into excitation. Tetanus toxin and rabies virus had the same effect. These agents, therefore, worked havoc with the elemental coördination of the skeletal muscles, changing reciprocal innervations into identical innervations. Hence in tetanus patients the greater the effort made to open the jaw the more tightly was the jaw closed, and in the hydrophobia patient the greater the attempt made by the sufferer to inhibit his inspiration in order to swallow the deeper and more prolonged the inspiration which, contrary to his desire, ensued, inhibition being converted by the virus into excitation.

Dr. C. J. MCALISTER showed a patient suffering from Tabes, who had been treated by salvarsan with much benefit. The patient had acquired syphilis six years ago, the symptoms of tabes being first noticed four years ago. These were lightning pains, marked unsteadiness in gait, nocturnal incontinence, loss of the knee-jerks, &c. In one eye there was old iritis, in the other iridioplegia, and there were tertiary ulcers on the side. On Jan. 19th salvarsan was given intravenously. The injection was followed by some transitory constitutional disturbances, but manifest improvement. The pains, ataxia, and incoördination were greatly relieved, also disturbance of sensation was less marked, and the patient was able to walk a considerable distance.—Dr. A. GORDAN GULLAN was not surprised at the improvement, since many cases of the disease were greatly benefited by mercury, if this was given in the early stages and continued for a long period.—Dr. W. B. WARRINGTON briefly mentioned the very divergent views which were held on the question of the antispecific treatment of tabes.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 2nd, Dr. F. Hinds, the President, being in the chair.—Mr. H. H. Taylor showed a Skiagram of a Piece of Steel from an instrument in the Eye of a patient on whom he had had to perform excision. He remarked that in his experience of eye accidents the foreign body was always from the instrument, not from the substance against which the instrument struck, and he also commented on the great rapidity with which the eyeball became inflamed in these cases.—Mr. W. Barrington Prowse showed: (1) Skiagrams of some Fractures at the Wrist, which showed that the styloid process generally was broken in cases of Colles's fracture; (2) a case of Scoliosis in a girl aged 10 years, which had started at three years of age; (3) a Stone in the Bladder which had not been detected by sounding; (4) a case of Deformity

of the Knee due to tuberculous disease; (5) Unerupted Canines; and (6) a case of Gastroptosis in which the colon and stomach were outlined by bismuth.—Dr. H. Nethersole Fletcher showed a photograph of a man from whom he had removed a large ulcerating lipoma, weighing 6½ pounds, from the scapular region. It had been suspected to be malignant, but this was not so.—Dr. R. J. Ryle showed two cases, brother and sister, with Upward Dislocation of the Lens, on whom he had performed needling.—Dr. Walter Broadbent showed a man with an Aneurysm of the Aorta, who had come to him simply complaining of difficulty in swallowing. If a bougie had been passed it would probably have perforated the sac. There was marked pulsation to the right of the sternum in the second and third spaces.—Dr. C. F. Bailey exhibited skiagrams of: (1) Stone in the Ureter; and (2) Osteo-arthritis of the Knee, showing calcification of the synovial membrane.—Dr. A. J. Hutchison read a paper on the Nystagmus Tests for Examining the Functional Activity of the Semicircular Canals. He described the rotatory, caloric, and pressure tests, remarking that the caloric was the most generally applicable. He entered into the diagnosis between labyrinthine and cerebellar disease by means of these tests, stating that at present the whole subject was chiefly of interest to otologists, and that even in otological cases the tests must be taken along with other and better-established methods of examination, and that they should be very well marked if much weight was to be attached to them. They would, he thought, prove to be of considerable value (1) in examining patients before performing mastoid operations for chronic middle-ear suppuration by enabling an opinion to be formed as to whether the suppuration was limited to the middle-ear or had opened into the labyrinth; (2) whether it had destroyed the vestibular apparatus or not; (3) whether it had spread beyond the labyrinth or not; and (4) sometimes they might be useful in confirming a diagnosis of nerve deafness. He concluded by remarking that the whole subject was yet young, and it was probably too soon to state what were the limitations and what were the possibilities of development of this new method of diagnosis.—Dr. A. G. Bate read a paper entitled "The Ductless Glands in Action and Interaction." The chief facts to which he drew attention were as follows. In the anatomy of the glands, the striking arrangement of the pituitary, thyroid, parathyroids, all as outgrowths of the branchial region; the differentiation of each set of glands into two divisions which are anatomically in juxtaposition, but are of different origin, function, and histology; the existence of a chromaffin system in connexion with the sympathetic, of which the medulla of the adrenals forms a part; the histological similarity of the thyroid, parathyroid, and adrenal glands with different parts of the pituitary. In connexion with the physiology of the glands, the relation of some of the ductless ones to the metabolism of different elements, the thyroid to iodine, the parathyroid to calcium, and the pituitary to phosphorus, was commented on, and clinically the vital importance of each of the ductless glands and their connexion in pathology, each one with a separate and serious disorder of metabolism, was insisted on.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 21st, Dr. W. Mitchell being in the chair.—The following specimens and cases were shown:—Dr. F. W. Eurich: (1) Microscopical demonstration; (2) specimens from a case of Gastro-intestinal Anthrax; and (3) Purulent Meningitis.—Dr. T. Jason Wood: (1) Multiple Vesical Calculi; (2) a Large Gall-stone; (3) Unruptured Tubal Gestation; (4) Malignant Growth of Colon (two specimens); and (5) Fibroid Uterus.—Mr. J. Basil Hall: Fibroid Uterus with Carcinoma of Rectum.—Dr. S. Lodge: A case of Locomotor Ataxy with Cervical and Lumbar Involvement.—Dr. Eurich read notes of some cases of Hysteria simulating Dementia.

THE INTERNATIONAL HYGIENE EXHIBITION, DRESDEN, 1911.—Sir T. Vezey Strong, the Lord Mayor of London, has consented to become the President of the British National Committee for this Exhibition, and has issued an appeal for subscriptions towards the erection and equipment of a British Pavilion. Of the £10,000 required for the purpose over £5000 has already been subscribed. Cheques should be sent to Lord Ilkeston, the treasurer, 47, Victoria-street, London, S.W.

Reviews and Notices of Books.

A Text-book of Medicine. By G. DIEULAFOY, Professor of Clinical Medicine at the Faculté de Médecine de Paris, Physician to the Hôtel Dieu; Membre de l'Académie de Médecine. Authorised English Translation from the fifteenth edition of "Manuel de Pathologie Interne," by V. E. COLLINS, M.D. Lond., M.R.C.S. Eng., L.R.C.P. Lond., and J. A. LIEBMANN, Ph.D., M.A., LL.D. In two volumes. London: Baillière, Tindall, and Cox. 1910. Pp. 2081. Price 25*s.* net for the two volumes.

A TEXT-BOOK on medicine by so distinguished a clinician as Professor Dieulafoy should be of special interest and value, not only as representative of French teaching on medicine, but also as the work of a physician of wide experience. The esteem in which this book is held in France may be judged when it is seen that this translation is made from the fifteenth French edition. It has, moreover, been translated into several other European languages. In a preface specially written for the English edition Professor Dieulafoy expresses his satisfaction at seeing his work translated into English. He also pays a tribute to the contributions of English workers to the advancement of medicine, and states that, following the example of his venerated master Trousseau, he has often dipped into English medical literature. This is a modest way of stating the position. It is obvious that Professor Dieulafoy has a wide knowledge of English medicine and the views of British authorities are often quoted. At the outset we may affirm that this book is a most useful one and the translators have performed a notable service in rendering it available in readable English.

The tendency in modern text-books of medicine is to describe in detail the general characters of diseases in systematic or categorical arrangement, whereas the older text-books, such as those of Trousseau and Watson, were written in descriptive style and were truly works on clinical medicine, since the characters of the disease were illustrated by special cases rather than by collected summaries of many cases elevated into an abstraction. Professor Dieulafoy's method combines both of these methods, since, although the systematic method is adopted as the general basis, the symptoms are often brought out descriptively by means of real or hypothetical instances. This gives a somewhat original and at the same time an attractive character to the book, rendering it easy to read.

The first volume commences with the consideration of diseases of the respiratory system, which are dealt with under their appropriate headings, often at considerable length. Syphilitic affections of the nose, larynx, trachea, and lung are described in much more detail than is usual in systematic works on medicine in this country. In connexion with pulmonary syphilis Professor Dieulafoy differentiates no less than six different forms and quotes illustrative cases. In a suspected case of pulmonary tuberculosis in which, after repeated examinations of the sputum, the tubercle bacillus is not found, he strongly urges the application of antisyphilitic treatment. In describing diseases of the lung less stress is laid upon primary congestion of the lungs than is often the case in French text-books, but Professor Dieulafoy differentiates a condition which he terms inflammation of the chest. In this disease, which does not find a place in our nosology, he states that hyperæmic and inflammatory elements are differently combined, and that the lung, bronchi, pleura, and muscular walls of the thorax may all be involved. It must be confessed that the description given is not convincing, and Professor Dieulafoy himself mentions that Grasset regards this supposed clinical entity as an

attenuated pneumococcal infection. The descriptions given of the forms of pulmonary tuberculosis are very full and interesting, although the terminology even in the translation is somewhat different to that commonly in use in this country. The word phthisis, for example, indicates the last phase of tuberculous lesions in general. In regard to treatment, the use of tuberculin is dismissed with brief consideration and its employment condemned. No mention is made of its administration in small doses or of its control by opsonic methods. An interesting section is that devoted to what is called false tuberculosis of the lung, which contains a valuable description of pulmonary aspergillosis. Hydatid cyst of the lung is also discussed at some length, together with its diagnosis and treatment. The expectoration of cartilaginous, bony, and calcareous bodies is elevated to the dignity of a special section under the title of broncho-pulmonary lithiasis, and the occurrence of crises of bronchial or pulmonary colic is described. Diseases of the pleura have been the subject of special research on the part of Professor Dieulafoy and, as might have been expected, they are described with admirable clearness and in exhaustive fashion. The descriptions of sero-fibrinous pleurisy and of the indications for paracentesis are masterly and authoritative. The characters of hæmorrhagic pleurisy are described and four different groups are separated with different causation. The difficult subject of interlobar empyema is dealt with fully, and some valuable information is given in regard to the clinical characters of this condition and its diagnosis. A separate form of pleurisy is described under the heading of mediastinal pleurisy.

The section on diseases of the heart calls for but little comment. The subject is treated upon ordinary lines and the descriptions given are clear and practical. Little or no reference is made to recent work upon His's bundle and upon the complex question of arrhythmia. Aortic stenosis is but briefly and inadequately described, and in connexion with tricuspid regurgitation it is a little surprising to find reflex spasm of the pulmonary vessels given as a cause of functional inefficiency of that valve. The treatment of valvular lesions is fully considered, and the recommendations given are characterised by their practical and useful nature. Exophthalmic goitre is included among neuroses of the heart, and a long and interesting account is given of this condition. Professor Dieulafoy concludes in regard to treatment that it is impossible at present to give surgical measures the preference over medical.

Diseases of the digestive system occupy nearly half the first volume and are dealt with in the exhaustive and original manner which characterises Professor Dieulafoy's work. It is impossible to do more than refer briefly to some of the special features of this section. The subject of diphtheria is treated at great length, and the importance of a bacteriological diagnosis in every case is urged. There is an interesting description of other membranous exudates in the pharynx, including those due to Brisou's coccus, streptococci, staphylococci, pneumococci, the colon bacillus, micrococcus tetragenus, and syphilis. Appendicitis and its numerous complications are treated exhaustively. In regard to the pathogenesis of this condition Professor Dieulafoy maintains that it results from "the transformation of part of the appendicular canal into a closed cavity, which becomes a focus of infection and intoxication, due to the increased virulence of the imprisoned microbes." He is insistent in urging immediate operation in all cases of appendicitis, and most strongly condemns waiting for a quiet interval. On the other hand, he is careful to discuss conditions of pseudo-appendicitis in which operation is unnecessary. A clear and full account is given of hypertrophic tuberculoma of the cæcum, and some interesting cases of this condition are recorded. In connexion with diseases of the peritoneum, various forms of primary peritonitis, notably those due to the pneumococcus and the streptococcus, are described. The subject of cirrhosis of the liver is dealt with in a lucid and interesting manner, and an interesting section deals with the curability of this condition and of the associated ascites.

The second volume commences with the study of diseases of the urinary system. The subject of nephritis and its varieties is discussed at some length, and the various views given in regard to their etiology and pathology are carefully outlined. Professor Dieulafoy describes a form which he calls toxic appendicular nephritis. The surgical treatment of nephritis is carefully discussed in an interesting section. Renal syphilis and renal calculi are fully and carefully described. Reference is made in connexion with the symptoms of large fixed calculi in the kidney to the description by Sydenham of his own symptoms.

Diseases of the nervous system are next dealt with. These are well classified and are described in clear and simple fashion. Many illustrative cases from the practice of Professor Dieulafoy and his colleagues are given in more or less detail, and authorities are frequently quoted. In connexion with aphasia, the various forms of this condition are described on conventional lines, and then the new doctrine in regard to aphasia as introduced by Marie is described. One section is devoted to a discussion of the medico-surgical errors in regard to cerebral localisation. It is maintained that there is no symptom or sign to enable a differentiation to be made between Jacksonian epilepsy due to a lesion of the Rolandic area, or to one of the frontal region. Under the general heading of neuroses, hysteria is described in some detail; also a condition to which the name of cerebro-cardiac neuropathy, or Krishaber's disease, is applied. The subject of tetany is dealt with very briefly, and the rather heterodox suggestion is made that some cases may be due to Nicolaier's bacillus.

General and infectious diseases are discussed under the following headings: Eruptive Fevers, Typhoid Diseases, Infectious Diseases Proper to Man, and Infective Diseases Common to Man and Animals. Diseases of the spleen are described next and then the pathology of the blood. Under the heading of Chlorosis, a condition called by Professor Dieulafoy chloro-Brightism is described. It appears to consist of the ordinary symptoms of chlorosis, together with puffiness of the face, œdema of ths eyelids, dead fingers, epistaxis, and cramps in the calves. It is affirmed that a rigid milk diet is of great value in the treatment of such cases. Rheumatic and dystrophic diseases are next discussed. This section contains a very full account of diabetes and its treatment. Under the heading of Parasitic Infections only trichinosis and filariasis are described. Diseases affecting the locomotor system, venereal diseases, and the intoxications occupy the concluding sections. There are also three small appendices dealing with special forms of treatment.

Professor Dieulafoy's book affords an interesting presentation of French practice in medicine and is well worth study. We have read it with great interest, as it is both original and suggestive, and it must be helpful to the practitioner, since it is especially calculated to afford light in regard to obscure and rare cases.

A Text-book of the Practice of Medicine. By JAMES M. ANDERS, M.D., Ph.D., LL.D., Professor of Medicine and Clinical Medicine at the Medico-Chirurgical College, Physician to the Medico-Chirurgical Hospital, Philadelphia. Illustrated. Ninth edition. London and Philadelphia: W. B. Saunders Company. Pp. 1326. Price 24s.

A WORK which has reached the ninth edition needs no preface from us as to its nature and scope; suffice it to say that the book is intended to introduce the student to the present state of the knowledge of the practice of medicine

in general and of the diagnosis, differential diagnosis, and treatment of disease in particular.

The aim of the author in producing a new edition is to add the most important practical advances since the date of the previous issue, at the same time much of the text that has become more or less obsolete has been eliminated, thus obviating any material increase in the size of the volume. Controversial points have been, for the most part wisely, omitted from consideration, and the author has dwelt in detail on the practical aspects of medical affections which are most likely to aid practitioners and students in diagnosis and treatment. As this work is naturally intended mainly for American students, the section on tropical diseases has been somewhat enlarged, so as to meet the steadily increasing need of knowledge in this branch of internal medicine. Among the conditions and diseases newly discussed in this volume are: filaria Philippinensis, chronic purpura, leucanæmia, acute pneumonokoniosis, hereditary cerebellar ataxia (Marie and Nonne), myatonia congenita, and adiposis tuberosa simplex. New and "rewritten matter" also includes the following: The action of Flexner's and Wassermann's serum in the treatment of cerebrospinal meningitis, Kelling's method or the hæmolytic serum test in gastric carcinoma, certain new theories on the causes of uræmia, traumatic neuroses, and symptoms of combined system sclerosis. Numerous other subjects receive brief attention, so that the work has been thoroughly brought up to date.

This text-book is complete in all respects; if it possesses no marked superiority over others published in America or in this country, it does not fall behind the best of them.

Pathological Anatomy Plates. Reproduced from fresh preparations. With explanatory anatomical and clinical text by ALFRED KAST, M.D., Professor of Clinical Medicine, Hamburg; formerly Director of the Hamburg State Hospitals. Assisted by EUG. FRAENKEL, M.D., Professor of Anatomy, General Hospital, Hamburg-Eppendorf; and THEODOR RUMPEL, M.D., Senior Physician, General Hospital, Hamburg-Eppendorf. English translation by FRANCIS C. PURSER, M.D. Dub., F.R.C.P. Irel., Assistant Physician, Richmond, Whitworth, and Hardwicke Hospitals, Dublin. With Preface by J. LORRAIN SMITH, M.D. Edin., Professor of Pathology, University of Manchester. Complete in 26 parts. London: Baillière, Tindall, and Cox. 1910. Price 5 marks per part; single plates, 1.50 marks.

THIS work consists of a large number of plates illustrating the appearances of fresh specimens of the common abnormal conditions of the various systems and organs of the body. It is published in 26 parts, each containing from four to six plates, with explanatory notes in German, English, Italian, and Russian. These notes comprise in most cases brief clinical records of the cases from which the specimens were derived, with a description of the post-mortem appearances, and more or less full details in regard to the particular morbid condition shown.

In a few of the plates there are representations of the histological characters of the chief lesions, but for the most part only gross changes are illustrated. The plates are reproduced in colour and are of a high level of attainment as examples of colour printing, since they reproduce with striking fidelity the appearances of post-mortem specimens recently removed. The subjects selected for illustration are also well chosen and comprise examples of pathological conditions affecting the circulatory organs, the osseous system, muscles and tendons, the nervous system, the intestinal tract and peritoneum, the liver, pancreas, spleen and lymphatic glands, the respiratory system, the urinary organs, and the sexual organs. A few rare conditions are included; for example, the appearance of an exanthem in a case of cholera, though since this is the only lesion of the skin which is represented it is a little difficult to understand why it is given. It is also not quite clear to us why an accessory thyroid at the root of the tongue is described under the heading of organs of special sense, and why even if it is so regarded it should be the only representative of these organs to be illustrated. An uncommon condition shown in one plate of the urinary organs is malakoplakia of the bladder. Several good plates illustrative of rickets and infantile scurvy are given, the latter condition being referred to as Möller-Barlow's disease. We have no affection for proper names applied to diseases, and when this terminology is made a battle-ground of priority claims it becomes not only clumsy but irritating.

All the plates are good and we do not single out individual examples for special commendation. In the majority of cases the organs are represented of the natural size, but in a few instances they are slightly reduced. The only description attached to each plate is the name of the condition and of the organ affected in Latin, with a reference letter and number to correspond with the letterpress. If there be a need for an atlas of pathological anatomy this work is well adapted to supply it, but the objection to atlases and plates applies to this one—viz., the danger that the student may rely upon his study of these pictorial representations, which are admittedly admirable in the present instance, instead of using them as a companion to his work in the post-mortem room. A study of morbid anatomy involves other considerations than those of mere naked-eye appearances, such as texture, consistence, and relation to other organs, which no atlas can supply, and even museum specimens are only a poor substitute. As a means of revision before examination, or to recall appearances to practitioners with limited opportunities for post-mortem work, this atlas may be useful, but a little post-graduate study in the post-mortem room is of greater value than prolonged examination of plates, excellent though they are.

Practical Bacteriology, Blood Work, and Animal Parasitology, including Bacteriological Keys, Zoological Tables, and Explanatory Clinical Notes. By E. R. STITT, A.B., Ph.G., M.D., Surgeon, U.S. Navy; Graduate, London School of Tropical Medicine; Associate Professor of Medical Zoology, Philippine Medical School; formerly Instructor in Bacteriology, and Tropical Medicine, U.S. Naval Medical School. Second edition, revised and enlarged, with 91 illustrations. London: H. K. Lewis. 1911. Pp. 345. Price 6*s.* 6*d.* net.

IN our review of the first edition of this book [1] we anticipated that owing to the extremely practical character of the work it was likely to be of service to very many practitioners. This proves to have been the case, for in less than two years this second edition has been called for. The book is founded on the author's experience gained by submitting the methods advised in it to the criticism of a large number of post-graduate workers while under instruction at the American Naval Medical School. Such methods, and such methods only, as were found to be adapted to the requirements of practical, speedy, and satisfactory clinical laboratory diagnosis have been adopted. Apparently this same body of practical surgeons has decided that the usefulness of the work would be increased by the addition of a section dealing with the chemical examination of the urine and of the gastric contents.

A glance at the title shows what a large amount of ground this small manual of some 340 pages essays to cover. By keeping, however, within certain well-defined limits, Dr. Stitt has produced a work of real value. It is not a book for the

[1] THE LANCET, June, 1909, p. 1604.

student, but for one already trained in laboratory technique, and it will be especially valuable to all those who, in the colonies, or in the various services, have to practise without means of ready access to well-filled book-shelves. It should be of use also to those who have to deal with the problems of tropical disease. When the various suggestions made to meet the problem of the overcrowded curriculum are carried out it will be with this type of work, we suppose, that the medical student of the future will be supplied.

In this edition there is no change in the arrangement of the subject-matter, and "keys" or classifications form an essential feature of the work. There have, however, been a good many additions and a thorough revision of the work; it is not a mere reprint. The illustrations have been increased in number, and the spirit of classification found in the text is met with here also. The section on animal parasitology has been rewritten and almost doubled, and a chapter on poisonous snakes, with illustrations, has been added. The increasing importance of the protozoa leads to the inclusion of methods of cultivating and staining these organisms. The chapter dealing with fixation of complement and the methods based on this fixation has been increased, and the phenomena of anaphylaxis now find a place. There are additions, too, in the blood section of the book. A useful new illustration is given of the wing venation in tabanus, stomoxys, and glossina; and in the section on urine there are diagrams of the chief absorption bands.

The book is, as we have indicated, a useful and accurate practical manual, and is well printed and illustrated.

Manual of Bacteriology. By ROBERT MUIR, M.A., M.D. Edin., F.R.C.P. Edin., Professor of Pathology, University of Glasgow; and JAMES RITCHIE, M.A., M.D. Edin., F.R.C.P. Edin., Superintendent of the Royal College of Physicians Laboratory, Edinburgh, formerly Professor of Pathology in the University of Oxford. Fifth edition. With 170 illustrations in the text and 6 coloured plates. London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 688. Price 10*s.* 6*d.* net.

WE welcome this new edition of the Manual of Bacteriology. Probably no other work in English is more firmly or deservedly established as the text-book on its subject for the use of the medical student and practitioner. The book is, of course, of service to a wider circle than this, but it is as a work by medical men for students of medicine that it is especially valuable.

It is only three years since the last edition was published,[1] but much progress in bacteriology has been made during this period, and the results are incorporated in the present issue. Once more, too, this feat has been accomplished without any undue increase in the volume. Some 80 pages have been added, and there are four additional illustrations, but the bulk of the volume remains substantially unchanged. New editions do not always deserve to be so-called, but in the present instance it is literally true that there is hardly a chapter which remains unchanged, and in many cases the alterations are very considerable and have involved recasting the entire section. Not only is new information added, but the much more troublesome task of modifying the argument in the light of the new information has not been shirked. In the earlier chapters, dealing with the general biology of microbes and with methods for their study, the matter has been arranged somewhat more logically and systematically. The formulæ of various new special media, such as Martin's gonococcus medium, that for the culture of the bacillus of whooping-cough (Bordet and Gengou), and Sabouraud's medium for ringworm fungi, together with certain recent staining methods, are introduced. Probably the most important addition in this part of the work is the chapter giving methods for the investigation of the changes which are produced in serum by the processes of immunisation and infection. Methods for the estimation of the bactericidal powers of serum, for the carrying-out of hæmolytic tests and other investigations dependent on deviation of complement, are now presented.

There are changes also in the methods of water analysis and in the bacteriology of sewage. In the chapter on B. tuberculosis the methods and results of Much's researches are given, various new media for the isolation of the bacillus are included, and the tuberculin reaction is now treated as part of the general phenomena of supersensitiveness. The recent results obtained by Clegg in the culture of B. lepræ and the frequent occurrence of the Wassermann reaction in leprosy are mentioned. The treatment of the organisms allied to B. typhosus and B. coli has been much altered, and the changes make for greater simplicity and clearness. The changed views on typhoid infection and the importance of carriers are explained, and the paratyphoid and food-poisoning bacilli are treated separately. A general review of the coli-typhoid organisms is finally given, together with a useful tabular statement of the principal reactions of the various members of the group. The diseases due to various spirilla are now collected in one chapter. In the excellent chapter on immunity anaphylaxis is briefly considered, and there is a short section on the serum disease in man. Epidemic poliomyelitis, phlebotomus and typhus fevers occupy appendices.

The form and appearance of the book have not been modified, though the publishers are changed. The printing and paper are quite satisfactory. The illustrations have always been a remarkable feature of the work, and the reproductions seem rather sharper and brighter in this than in the last edition; possibly paper and printing may account for this. A series of admirable drawings by Mr. Richard Muir reproduced in colours have been prefixed to the work. We have no doubt that the new edition will secure the continued and deserved appreciation of all students and teachers of bacteriology.

[1] THE LANCET, Dec. 21st, 1907, p. 1768.

The Prevention of Malaria in the Federated Malay States. By MALCOLM WATSON, M.D. Glasg., D.P.H. Camb., Chief Medical Officer, Estate Hospitals Association, Klang; late Senior District Surgeon, Federated Malay States Medical Service. With Preface by Professor RONALD ROSS, C.B., F.R.S. With 24 illustrations, maps, and charts. Published by the Liverpool School of Tropical Medicine. 1911. Pp. 139. Price 7*s.* 6*d.*

FROM the preface we learn that Dr. Watson was invited by Professor R. Ross to contribute an article to his recently published book on "The Prevention of Malaria," but owing to the amount of material which Dr. Watson had collected it was not found possible to compress it into the space available in Professor Ross's volume. It was therefore decided to issue it as a separate work; and with the assistance of funds subscribed by a number of commercial companies having estates in Malaya, the book has now been published by the Liverpool School of Tropical Medicine. The work is divided into two parts, the first dealing with malaria in the coast towns, and the second with the disease in rural districts. The Federated Malay States possess great natural riches and have an intelligent population; they can also draw upon neighbouring sources of labour. Notwithstanding these advantages progress is greatly hindered by the existence of malaria. The malaria problem here as elsewhere, as our readers are doubtless aware, is largely a financial one. The author has

laboured with great energy and enthusiasm to prevent as far as possible the ravages of this devastating and debilitating malady. He has carried out his campaign for ten years or more, and claims to have proved that the pool-breeding anopheline which transmits malaria on the coast of Malaya and on the flat land can be exterminated by open drainage at a low cost; and that with the extermination of the anopheline malaria has disappeared, the value of the land being greatly increased by the drainage works. Hundreds of square miles of the flat lands have been freed from malaria by simply draining, and by felling the jungle in which anophelines breed. Certain hilly lands intersected by ravines, though opened and drained, remain as malarious as before. In these the transmitting agent is an anopheline (Nyssorhynchus willmori) which, breeding in the streams of the ravines, cannot be driven from them notwithstanding that the streams are kept free from weeds, and which cannot be completely washed out even by the heaviest tropical showers.

Dr. Watson discusses the value of quinine at considerable length, and comes to the conclusion that when it is given regularly in appropriate doses it greatly reduces the sickness and death-rate of those exposed to malaria; but even when persons are taking large doses parasites may be found in their peripheral blood. The value of quinine, moreover, greatly depends on the degree of supervision exercised in its administration. The use of quinine can never, therefore, result in the abolition of malaria, or even make any material reduction in the liability to infection in a malarious locality. As regards special anti-mosquito measures for the stream-breeding anophelines (N. willmori), Dr. Watson recommends that the ravines be thoroughly drained by pipes, from 1½ to 2 feet underground; but he suggests that the most economical and effective method of dealing with malaria on hill estates infested by this particular anopheline will be evolved by the joint work of an entomologist, an engineer, and a medical man. The author is hopeful that with our present knowledge of malaria there will be no difficulty in ultimately eradicating the disease even on the most unhealthy estates. With the disappearance of malaria the solution of the labour problem in Malaya will be attended with comparatively little difficulty. Working on Ross's discovery and on the methods advocated by him, we may, Dr. Watson says, confidently hope to drive out the disease completely from the land. This book is a valuable contribution to the literature of malaria, and ought, in our opinion, to be carefully studied by all who are practically and personally interested in the prevention of the disease.

LIBRARY TABLE.

Differential-diagnostische Tabellen der inneren Krankheiten. (*Differential-diagnostic Tables of Internal Diseases.*) Von J. CEMACH in Wien. Munich: J. F. Lehmann. 21 tables. Price M.3.—A book consisting of tables can obviously present at best a mere skeleton of the subject dealt with. Dr. Cemach disarms criticism by stating in his preface that his tables can only be of value to those who, possessing a good grounding in the general symptomatology and pathology of disease, are desirous of applying their knowledge practically in the diagnosis of the condition of patients. His tables were originally prepared for his own personal use, and are intended for reference in order to facilitate the critical elucidation of the nature of the condition from which a patient is suffering. There are 21 main tables, each one being concerned with diseases of an organ or system, or with a group of fevers. There are in addition a few secondary tables, printed on the back of the others, dealing with certain special conditions, or with symptoms requiring more detailed analysis. In each table the symptoms and physical signs of a number of diseases are classified, and reference is very easy. On the whole, diseases of the blood and of the nervous system lend themselves best to this tabular treatment. Some of the secondary tables are also useful, such as those dealing with the differential diagnosis of asthma, other forms of dyspnœa, ascites, and intestinal obstruction. They suffer, however, from the usual defect of medical tables—viz., they fail to take account of the variability of the manifestations of diseases—in other words, they are too rigid in their analysis. It is obvious that a great deal of labour has been expended in preparing these tables, and if used for the purpose for which the author intended them—i.e., to assist in a rapid review of the clinical characters of a group of diseases with symptoms in common so as to assist in diagnosis—they may be helpful.

Essays on Duty and Discipline. A Series of Papers on the Training of Children in Relation to Social and National Welfare. London, New York, Toronto, and Melbourne: Cassell and Company, Limited. 1910.—In this book many papers are reprinted in uniform size from various newspapers and magazines, while addresses are included which have been delivered on various occasions by writers and speakers like well-known persons as the late Professor Friedrich Paulson, Bishop Welldon, Lord Meath, Canon Lyttelton, headmaster of Eton, and Cardinal the Archbishop of Westminster. The dominant note of the book is one of warning. We find in it a lament, unfortunately much needed, over the decay of parental responsibility, the lack of discipline and control of childhood, the loosening of the bonds of legitimate authority, with their inevitable consequences, the prevalent lack of "grit," greed of pleasure, and love of ease. The result of such general deterioration is summarised in the following words of Isabel D. Marris: "History teaches us what is the result, upon a nation, of a love of pleasure and luxury, self-pleasing, and lack of self-control. The laws that have always governed the world are not likely to be altered for the special benefit of the British race. If we, as a nation, follow the same path of indulgence that led to the downfall of Rome and Greece, we English people will just as surely be ruined by our own faults, or conquered by a more disciplined nation, as even the Romans and the Greeks." The pessimism is overdone. None the less, while it would probably be impossible to find any single person, maybe even among the writers themselves, who would agree with all the views expressed in the book, it is certain that many of the papers present material worthy of consideration.

Transactions of the International Swedenborg Congress held in Connexion with the Celebration of the Swedenborg Society's Centenary in London, July, 1910. London: The Swedenborg Society. 1910. Pp. 374.—This volume contains the papers read before the Congress, and a brief record of its proceedings. The Congress was attended by representatives from the United Kingdom, the United States of America, Canada, Australia, India, France, Germany, Austria, Switzerland, Spain, Sweden, Norway, Belgium, and Holland. The opening address of the President, Mr. E. J. Broadfield, dealt with the life and work of Swedenborg, touching very briefly on the various departments of theology, philosophy, and science which were illumined by this many-sided man, one of the greatest students of his century. The Congress met in three sections, science, philosophy, and theology. In the section of science addresses were presented by Dr. Axel Andersson, from the Upsala University and the Upsala Royal Scientific Society; by Professor Lönnberg, representative of the Royal Swedish Academy of Sciences; Professor Hj Sjögren (superintendent

of the State Museum for Fossil Plants, Stockholm), representative of the Swedish Board of Trade; Commodore Sundström; Professor S. E. Henschen, professor of clinical medicine, Caroline Institute, Stockholm; Professor O. M. Ramström of Upsala University, representative of the Anatomical Institute of Upsala; Mr. A. H. Stroh, and Dr. Max Neuburger, professor of the history of medicine, Vienna University. The perusal of the papers contributed to this section on Swedenborg as a physiologist, a physicist, and cosmologist will surprise many who do not realise how high Swedenborg stood above his contemporaries and how largely his scientific ideas agree with the results of modern researches. It is fascinating to read of his achievements in respect of the physiology of the brain and the construction and functions of the spinal cord. All this is clearly brought out in the papers by Professor Max Neuburger and Professor O. M. Ramström. These thoughts of cerebral localisation for sensory, motor, and psychical activities appear at first glance as exceedingly modern, but even in Swedenborg's time they were not new, for in the first half of the seventeenth century the philosopher Descartes had already expressed a detailed idea of localisation, which Professor Ramström explains and illustrates in his paper on Swedenborg on the Cerebral Cortex. Dr. David Goyder of Bradford contributes a paper on Swedenborg's Deductions on the Functions of the Ductless Glands, bringing them into line with modern observations; and Dr. A. Rabagliati has papers on the Views of Swedenborg on the Motion of the Brain, that it is synchronous with respiration and not with the action of the heart, and on his remarkable scientific anticipations. This collection of papers will be preserved by the followers and admirers of Emanuel Swedenborg as a complete and interesting history of his achievements, deductions, and inspirations.

On Acute Intestinal Toxæmia in Infants. An Experimenta Investigation of the Etiology and Pathology of Epidemic or Summer Diarrhœa. By RALPH VINCENT, M.D. Durh., M.R.C.P.Lond., Senior Physician and Director of the Research Laboratory, the Infants Hospital, London. An Address delivered before the Glasgow Obstetrical and Gynæcological Society on Nov. 23rd, 1910. London: Baillière, Tindall, and Cox. 1911. Pp. 83. Price 3s. 6d. net.—Dr. Ralph Vincent propounds his views as to the nature of the condition of epidemic or summer diarrhœa, and gives the evidence upon which they are based. He objects to the name by which this condition is usually designated, since he claims that diarrhœa is not an essential symptom, and further that the disease is in no sense an infectious one, and that it cannot be conveyed by contagion. As a result of some experiments on young kittens and of observations upon the disease in children, Dr. Vincent concludes that so-called epidemic or summer diarrhœa, or acute intestinal toxæmia as he prefers to call it, is a disease caused by the absorption of poisons produced by the action of certain putrefactive organisms, which though normally present in the intestinal canal are in normal circumstances unable to produce their effects, since they are inert in an acid medium. The organisms which he discusses in this connexion are bacillus subtilis, bacillus mesentericus bacillus mesentericus vulgatus, and bacillus proteus vulgaris. Dr. Vincent believes that cooking the milk which an infant is fed upon is an important factor in the genesis of the disease. He claims that the organisms producing lactic acid are thereby killed, and thus an important check upon putrefactive processes is thrown out of action. He urges the necessity of securing a pure milk-supply, so that infants may be fed upon raw milk. He recommends the refrigeration of milk at the farms immediately after milking, and its transference to the town in insulated churns. We agree that the collection, transport, and distribution of much of our milk-supply require revision. Other of Dr. Vincent's views are in many ways less easy to support, but if they are heterodox they are also the outcome of a thoughtful study of the problems connected with infant feeding.

JOURNALS AND MAGAZINES.

Dublin Journal of Medical Science.—In the March number Dr. T. Gillman Moorhead gives some notes of a fatal case of myasthenia gravis in which a complete post-mortem examination was obtained. The findings post mortem were thymus persistent, with two well-defined lobes extending down over the pericardium. Microscopically it was normal but contained no eosinophile cells. Thyroid enlarged and more cellular than normal. Kidney slightly congested, and showing parenchymatous changes; both ovaries enlarged and cystic. Other viscera, including red marrow and pituitary body, also spinal cord, medulla, pons, central nuclei, and cortex in the Rolandic region of the brain, normal macroscopically and microscopically. The masseter and pectoralis major muscles appeared normal, but there was some atrophy of the levator palpebræ superioris. No lymphorrhages were found. A consideration of the facts makes the author think that in the future physiologists and pathologists should seek for an explanation of both normal and abnormal metabolic changes more in a study of the inter-relationships of organs and of the effects which the products of one produce upon the functions of another than in the study of the individual organs as isolated structures. Epidemic pneumonia is studied by Dr. Allman J. Powell, who enunciates the view that it is possible that at one time the pneumococcus was an organism of much higher virulence than at the present day, and occasionally it may revert to the former type, producing, when it does so, the epidemic form of pneumonia, "pneumonic fever." Physicians may yet see the day when reversion to the original type may become the rule and pneumonia be classed as a highly infectious fever. Dr. Boyd Barry discusses congenital fistulæ and Dr. James F. Clarke influenza.

Edinburgh Medical Journal.—Dr. G. A. Gibson contributes in the March number the introduction to a discussion on arterial pressure at the Glasgow Medico-Chirurgical Society on Nov. 30th, 1910, in which are discussed the definition of terms, the influences at work, the methods of investigation, possible fallacies, arterial pressure in health, arterial pressure in disease, and the treatment of changes in pressure. Dr. Edwin Matthew considers the use of the iodides in high blood pressure and arterio-sclerosis, and concludes that iodides have a marked hypotensive action in high blood pressure without arterio-sclerosis, but none in advanced arterio-sclerosis with high blood pressure. They are vaso-dilators, and to produce a beneficial action in hypertension 10 grains of the potassium salt should be the initial dose, to be increased rapidly if necessary. The organic iodides in the therapeutic doses recommended contain too little iodine to be efficient, and sajodin in corresponding doses should be substituted only in cases in which the iodides are contra-indicated by alimentary disorders. Mr. David M. Greig considers four cases of congenital high scapula, in one of which there was an absence and defective condition of certain ribs, together with a lumbo-sacral hypertrichosis.

ASSOCIATION FOR PROMOTING THE TRAINING AND SUPPLY OF MIDWIVES.—The seventh annual meeting will be held by permission of Lady Brassey at 24, Park-lane, W., to-day (Friday), March 10th, at 3.30 P.M., when the chair will be taken by H.R.H. Princess Christian of Schleswig-Holstein.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

OMNOPON.

(THE HOFFMANN-LA ROCHE CHEMICAL WORKS, LIMITED, 7 AND 8, IDOL-LANE, LONDON, E.C.)

OMNOPON is the outcome of a suggestion that the total alkaloids of opium might give a combination of effects of special value in certain cases. The suggestion appears to be amply justified judging from the favourable results of its use which have been reported. In our own columns (Feb. 11th, 1911), Mr. C. Louis Leipoldt gave an interesting account of his experience of the value of omnopon in anæsthesia, the omnopon being used as a preliminary to the administration of the general anæsthetic. The innovation is due to Professor H. Sahli, director of the medical clinic in Berne. Omnopon contains the total alkaloids of opium, and quite a number of definite alkaloids have been separated. These, in omnopon, occur as soluble chlorides. The preparation appears as an amorphous yellowish-brown powder dissolving readily in water. For administration it may be obtained in the form of tablets, each 1/10 grain, or of tubes of powder 1/5 grain. In the fluid form omnopon is contained in ampoules, the dose being 1 c.c., which is equal to 1/3 grain of omnopon; 1/5 grain of omnopon is equivalent to 1 grain opium B.P., 15 minims tinctura opii B.P., ½ grain extractum opii B.P., or 15 minims extract. opii liq. B.P. Mr. Leipoldt states that the initial stage of induction of anæsthesia when using omnopon is almost ideal, the patients are absolutely tranquil, and the calming and quieting effect of the drug is much more marked than is the case with scopomorphine. There is no struggling or excitement, the patients breathe deeply and regularly, the pulse is full and slow, while there is an absence of all signs of negativism, and once the case is "under" a very small amount of anæsthetic suffices to keep it in a suitably relaxed condition for the surgeon. On the continent omnopon is known by the name pantopon, the two preparations being identical.

THERMAL SPRINGS OF BRITISH COLUMBIA.

(ENGLISH AGENCY: D. HATCHER, KINFAUNS, ASHFORD, MIDDLESEX.)

Specimens of waters taken from three springs situated in the Rocky Mountains of British Columbia have been submitted to us for analysis and the results are of interest. The springs are situated in the Sinclair pass in the valley of the Columbia river, East Kootenay. Now that a branch of the Canadian Pacific Railway is opening up this country there is a prospect of the springs being developed for hydrotherapeutic purposes. The samples sent to us were marked A, B, and C, their temperatures at the time they were drawn being respectively 115°, 114°, and 103° F. The mineral constituents present according to our analysis are set out in the following table:—

Grains per Gallon.

	A.	B.	C.
Calcium sulphate	36·17	34·26	33·11
Magnesium sulphate	11·20	10·90	9·80
Aluminium sulphate	7·04	*Nil.*	*Nil.*
Sodium chloride	5·00	2·70	1·16
Silica	2·66	2·59	1·82
Strontium sulphate	1·70	3·36	3·40
Calcium carbonate	1·12	6·55	5·85
	64·89	60·36	55·14

Speaking generally, it will be seen that the waters resemble, physically and chemically, the famous springs at Bath. The mineral constituents, at all events, are of the same kind, while the temperatures of the three British Columbia waters agree exactly with those exhibited by three of the thermal waters at Bath. We may conclude, therefore, that these waters from British Columbia and those of Bath will possess therapeutic properties in common. The Bath waters are best known in the treatment of chronic gouty and rheumatic affections and in certain skin disorders. It is interesting, having regard to the facts of analysis, that the British Columbia springs have a considerable local reputation amongst the Indians and settlers chiefly for the cure of rheumatism and skin diseases. The waters show a remarkable degree of organic purity. B and C contained a small but distinct amount of sulphuretted hydrogen, the presence of which, however, is probably due to a partial reduction of the sulphates. We could find no lithia, but strontium was characteristic in all. The waters belong clearly to the class known as thermal earthy calcareous waters. It would be interesting to ascertain whether the water gives off rare gases, as is the case with Bath water, or whether, as is probable, they show radio-active properties, which, of course, can only be determined by careful examination at the source.

CONCENTRATED GRAPE JUICE.

(CESARE RIGHINI, RIVOLI, ITALY, AND 2, MARLBOROUGH-HILL, ST. JOHN'S WOOD, LONDON, N.W.)

We have not previously examined grape juice which has been so successfully concentrated as this specimen. We understand that the water in the juice has been withdrawn by a freezing process. The concentration may be pushed far enough to produce at length a solid product having the appearance and consistence of crystallised honey. The advantage of this process is that the rarer constituents of the juice are retained, whereas sterilisation by heat, as is well known, removes coagulable bodies. The flavour is excellent, delicately acid, and strongly reminiscent of the luscious grape. On analysis we obtained the following results: moisture, 14·76 per cent.; mineral matter, 0·18 per cent.; protein, 0·17 per cent.; volatile acidity, *nil*; tartaric acid, 0·75 per cent.; grape sugar, 84·14 per cent. In addition to the above we found evidence also of the presence of phosphorus in organic form, whilst, of course, phosphates occurred in the ash, together with decided amounts of iron and manganese. The grape juice, further, is prepared in the form of a jelly which has a very pleasing and attractive flavour, and it is also soothing to the throat. It is obvious that these preparations are particularly well adapted for therapeutic and dietetic use.

OZET BATHS.

(THE FABRA COMPANY, LIMITED, 24, MINORIES, LONDON, E.C.)

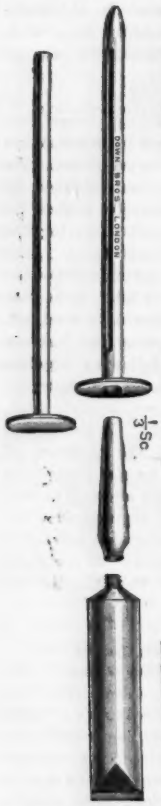
A bath effervescing with oxygen gas sounds attractive, but hitherto it has not been convenient to prepare. The Ozet baths, however, are simple enough and effective. Their composition is based on the fact that a stable peroxide may be made to give up its extra oxygen atom by being brought into contact with a "catalysator." In preparing the oxygen bath, or the oxygen gas-brush as it has been called, all that has to be done is to distribute the peroxide throughout the water in the bath, and then the catalysator is spread in the same manner and the water stirred thoroughly. The patient then enters the bath. The water soon assumes a milky appearance due to the disengagement of minute bubbles of oxygen gas. At the same time myriads of bubbles are formed on and discharged from the patient's skin. As the disengagement of the oxygen proceeds, which is steady and regular, the water assumes a brownish tinge due to the reduction of manganese present in the catalysator. The mixture, however, does not stain nor does it deposit within the time commonly prescribed for immersion. It is stated that one charge will give off 22 litres of oxygen gas. The indications of oxygen baths are somewhat wide, but so far the method has been tried in cardiac disease, rheumatism, gout, skin diseases, and in neurasthenia and in gynæcological practice. The innovation is of interest and merits careful trial.

New Inventions.

URETHRAL AND RECTAL OINTMENT APPLICATORS.

I HAVE found the instruments depicted in the accompanying engravings a most efficient means for the application of ointments to the urethra and rectum. They are an improvement on those at present in use, and possess the advantage of simplicity. Each instrument consists of: a metal tube with lateral slits, the lower end being closed with a conically shaped screw; a metal obturator equal in diameter to the internal diameter of the tube; and a metal nozzle with a universal screw at one end which can be screwed on to any ordinary collapsible tube.

FIG. 1.



In using the urethral applicator (Fig. 1) the patient is placed on a couch and the anterior urethra washed out with a pint of antiseptic solution such as hydrogen peroxide 5 per cent., potassium permanganate 1 in 2000, or mercury perchloride 1 in 6000 (a 4-ounce syringe fitted with rubber nozzle should be used). The instrument is sterilised and lubricated with glycerine and is passed without its obturator as far as the bulb (sometimes into the posterior urethra). A nozzle is then attached to a collapsible tube containing the ointment to be used and inserted into the urethral tube, as it lies in the urethra, squeezing the collapsible tube. The tube can be partially filled with the ointment. If the ointment should require liquefaction the nozzle may be heated in the flame of a bunsen burner. Having introduced the ointment the metal obturator is passed gradually. The ointment now exudes through the lateral slits of the urethral tube and the entire instrument is rotated in the urethra two or three times, so as to spread the ointment over the urethral surface. The urethra may be massaged on the surface of the instrument for two or three minutes, starting at the perineal scrotal junction and working up to the fossa navicularis. After removing the instrument the glans penis should be covered with cotton wool, which should be retained until the next urination.

FIG. 2.

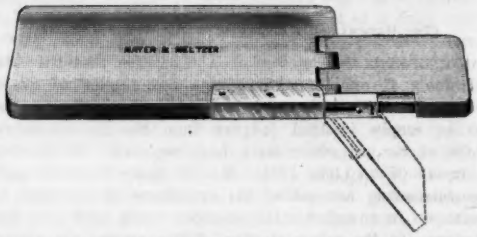
The rectal instrument (Fig. 2) is sterilised and lubricated with glycerine and passed with its obturator, and the obturator is then withdrawn. The rectal tube is filled with the ointment to be used by means of the nozzle attached to a collapsible tube. The obturator is then passed, forcing the ointment into the rectum through the lateral slits of the tube, and the entire instrument is rotated in the rectum so as to spread the ointment over the rectal surface.

Messrs. Down Bros., 21 and 23, St. Thomas's-street, London, S.E., are the makers.

Dublin. ANDREW CHARLES, F.R.C.S. Irel.

IMPROVED SPLINT FOR COLLES'S FRACTURE.

THE illustration given below represents a splint that I have designed for the treatment of Colles's fracture. The method of using the splint is as follows. The hand piece of the front splint is locked by the brass slide, then the splints are padded and applied in the usual way, care being taken that the back splint does not go beyond the wrist-joint, and that the hinge of the front splint just corresponds with the joint. The bandage which is now applied must not go beyond the wrist-joint, and when this bandage has been fixed a second bandage should be put on extending to the fingers. When it is deemed desirable to move the wrist-joint, all that is necessary is that the second bandage should be removed, then the



brass slide is pushed forward, which will enable the hand-piece to be turned back and the joint manipulated as desired. The advantages claimed for the splint are: 1. It secures movement of the joint without interfering with the fracture. 2. It leaves the fingers free for voluntary movement. 3. It deviates the hand to the ulnar border. 4. By being bevelled it corrects the displacement of the radius forwards. 5. It can be applied to either arm.

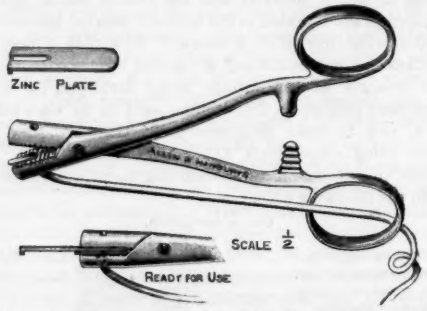
The splints are made in three sizes by Messrs. Mayer and Meltzer, 71, Great Portland-street, London, W.

G. M. DAWKIN, M.R.C.S. Eng., L.R.C.P. Lond.

Pontypridd.

A NEW CLAMP FOR USE WITH PLATE ELECTRODES.

THIS electrode clamp I have found most useful in the treatment of piles by zinc-mercury ions. For this purpose I take a piece of sheet zinc and cut the electrode to fit the case. Messrs. Allen and Hanburys, of Wigmore-street, London, W., who made the clamp from my pattern, now, however, also supply suitable electrodes for use with the instrument. In the treatment of piles I use a zinc plate about 2 inches long and $\frac{3}{4}$ inch wide, with a slit about $\frac{1}{4}$ inch long and $\frac{1}{8}$ inch wide, cut out at the distal end, thus forming two prongs, the tips of which are bent at right angles into hooks. The object of these hooks is to hold the electrode in the position in which it is first placed, thus ensuring the full reaction taking place all over the area treated, and that of the slit to allow of a view of a portion of the pile under treatment, thus giving the operator his colour index. This zinc electrode I amalgamate with metallic mercury while local anæsthesia is being obtained by means of tampons soaked in cocaine solution. To obtain a direct contact, I bare the end of the



conductor from the positive pole and pass it through the hole drilled in the clamp. The zinc-mercury electrode is then placed in position and the clamp closed, firmly pressing the copper wire against the zinc. The patient now being ready and the piles having been well strained down the electrode is applied to the part to be treated and the operation carried out in the usual manner. I have found this method very useful also in treating ulcers which are in a position difficult to reach with saturated tampons.

ALFRED J. H. ILES, M.R.C.S. Eng., L.R.C.P. Lond.

Taunton.

THE LANCET.

LONDON: SATURDAY, MARCH 11, 1911.

State Insurance against Sickness and Invalidity.

THE comprehensive survey of the economic and social conditions of the people of England and Wales which constitutes the report (Majority and Minority documents) of the Royal Commission on the Poor-laws, has revealed the comparative failure in many directions of existing systems of Poor-law medical relief, medical charities, and contract medical practice, and has created a growing demand from the public for the better provision of medical attendance for the wage-earning classes. In the report it is disclosed that a large proportion of the poorer classes do not obtain that prompt and efficient medical attendance which it is to the interest of the community that they should receive; and it is now believed that were the necessary organisation in existence these people, with a little help from the State, could provide themselves with efficient medical service by some scheme of insurance. Since the appearance of the Poor-law report the Government has made known that it has under consideration a scheme of State sickness insurance. There is no certainty as yet that this will include provision for medical attendance, but the belief is general that such will be the case, and there have been statements in the press purporting to give details of the proposals of the Chancellor of the Exchequer for State insurance against sickness and invalidity, based upon the result of a number of private conferences between Mr. LLOYD GEORGE and the members of certain friendly societies. In answering a question recently asked by Mr. BOOTH in the House of Commons, Mr. HOBHOUSE replied that the reports on this matter were issued entirely without the authority and knowledge of the Chancellor of the Exchequer, but he did not deny the accuracy of them. The main features of the scheme are the compulsory insurance of the whole working-class population of the country between 16 and 70 years of age whose incomes are below the income-tax level of £160 a year against sickness and invalidity to a minimum weekly amount of 5*s.*; the acceptance of the risks of all lives good and bad; and the establishment of a Central Administrative Council composed of representatives of the Government, the friendly societies, and the employers of labour to deal with all questions which may arise under the working of the scheme.

In view of the serious extent to which the interests of medical practitioners may be affected by the adoption of schemes of medical attendance under friendly societies' control, and in preparation for the probable eventuality of being consulted by the authorities before any Government scheme is definitely proposed, as well as with the useful purpose of directing the minds of legislators and the public along desirable and satisfactory lines, the British Medical Association, through a committee of its Council, has prepared and submitted to its divisions a report on the "Organisation of Medical Attendance on the Provident or Insurance Principle," and is desirous of obtaining the opinion of the medical profession before adopting a final attitude in supporting or opposing the various plans which will suggest themselves. The report is a valuable and instructive document divided into four sections. Section A deals with the reasons which make it necessary for the medical profession to ensure that the views of medical practitioners shall be ascertained and their interests respected, and contains a paragraph defining the attitude which the profession, in the opinion of the Association, should adopt at the present juncture. It has to be considered, says the report, whether simple resistance to any provident medical organisation undertaken by the community is likely to be of any avail, and whether it might not cause the community to seek other methods of making the desired provision which would be even less satisfactory to the profession. The alternative recommended by the Minority Report of the Poor-law Commission—namely, the employment of a few whole-time or part-time officers, selected by local health authorities to carry out the work of treating the sick poor, which would thus be taken entirely out of the hands of independent private practitioners, is not regarded in their report now made by the committee of the Council of the British Medical Association as desirable either in the interests of the profession or the public, and affords an additional reason for not throwing obstacles in the way of the development of medical services on provident or insurance lines. Section B deals with the general considerations by which the action of the Association must be guided, which is of necessity bound up with previous declarations of its policy. Section C, which forms the largest part of the report, deals with questions affecting the actual organisation of a medical service on an insurance or provident basis. It is a consideration of the constitution of the bodies which may control and carry out the detailed management of the provident service, the part to be taken by the medical profession in such control and management, a definition of the persons for whose requirements the service is to provide, of the benefits to be provided, the sources and amount of contributions to the insurance fund, the principles of selection of medical practitioners employed to attend the insured, and the method and amount of remuneration of those engaged in the work. Section D is a *résumé* of the possible effects of the scheme in the interests of the medical profession and the community. There are indications in the report of the line of action which the committee of the Council of the Association, which prepared the report, considers it desirable that the members should take, but the decision on all questions must be left to the divisions whose opinions have been

asked. This is well, for no action of the Association is likely to be successful that does not carry with it the force of a large body of medical opinion throughout the country, nor is any plan likely to receive a hearing from the Government that does not take into consideration the interests of public bodies, friendly societies, or organisations which at present provide to a limited extent those benefits which it is proposed to extend to the whole necessitous population. The committee emphasises the great importance of not prematurely attempting to enforce a policy on which there is not already general agreement before the course of events from the public standpoint has declared itself, but on certain questions it is regarded as important that the profession should make its views known as soon as practicable. We agree cordially with this attitude.

New methods and new organisations cannot be brought into working without dislocating those in present operation, and without adversely affecting the interests of one or more sections of the community. It is indeed probable that the position of the independent medical practitioner in attendance upon working-class patients will be seriously changed whatever scheme may be ultimately chosen to provide necessitous people with relief at the public expense for their physical needs, but it does not follow that his financial interests will be adversely affected. The total medical assistance provided probably will be much larger than is at present given, and in proportion to the extent of this increase the medical profession should benefit. If to the increase of work demanded be added the certainty of payment for work done, at present an unknown quantity, it will be seen that there are possibilities of advantage to the profession which should be recognised and secured. Whether there will be disadvantages sufficient to annul these will depend largely upon the principles and ideas which underlie any scheme that may be brought about. It is, nevertheless, important if defects exist that they should be pointed out, and an attempt made to prevent the adoption of schemes which are defective and vicious in principle in favour of such schemes as may be defective only in detail and organisation; for whereas the latter may be amended after adoption, the former are not susceptible of such treatment. Very much to the point in this connexion are the remarks of Sir ARTHUR DOWNES in his comment on the Poor-law proposals of the Executive Committee of the County Councils Association, contained in the new edition of Mr. CHARLES BOOTH'S volume on Poor-law Reform which is about to be issued. Whatever proposals may ultimately come to be adopted for medical assistance in the relief of distress, it is very ardently to be hoped that no needless confusion of functions will take place, and that the treatment of the sick will be left as now, a personal matter between practitioner and patient in all cases where it is possible to allow a free choice. There are circumstances where this may not be possible. At the same time it is equally important to point out the danger of placing the whole administrative control of a system of sick insurance with provision for medical attendance in the hands of lay organisations such as the friendly societies and philanthropic bodies.

The Medical Witness.

THE unsatisfactory position occupied by the scientific witness who is summoned to give evidence in a court of law, whether in civil or in criminal proceedings, is keenly felt by members of the medical profession who are compelled by circumstances, frequently beyond their control, to submit to the ordeal. The matter dealt with may be fitly a subject of controversy, conflicting opinions may reasonably exist, and views may rightly be expressed with regard to it which differ from their own, but their evidence is extracted from them and laid before the tribunal by laymen, the advocates in the case; and the tribunal itself, whether it consist of a judge or magistrate, or of a judge assisted by a jury, has no special qualification to enable it to come to a right decision. In order to remedy a state of affairs which should admit of amelioration, even if perfection may be unattainable, various suggestions have been made. These include one which in effect would involve the abolition of the medical expert witness and the employment of medical advisers appointed by the Crown to examine into and decide upon medical questions, or at any rate to advise the court with regard to them. Among other recent expressions of opinion upon this matter we have before us the report of an address recently delivered before the Academy of Medicine, Ontario, by Mr. Justice W. R. RIDDEL of the High Court of that province.

In discussing "The Medical Man as a Witness" the learned judge refers to the appointing of medical men to make reports to the court, and we are told that in certain criminal cases this is now the practice in Ontario. When there is any reason to suspect the sanity of a criminal two experienced alienists are sent to examine him and report. They are not advocates, and their whole duty is to determine the exact fact. They are at the disposal of the defence as well as of the prosecution. So, too, in cases of poisoning an analysis is made at the instance of the Crown. But even in these cases neither party is bound to accept as conclusive the evidence offered by these experts. Mr. Justice RIDDEL considers it a most dangerous practice to hold any person bound by the opinion of any expert, however able and honest. Medicine is an advancing science, and the official expert may fall behind the younger and non-official authority. A litigant should be at liberty to contest the opinion of an expert in a science which is living and growing, and it must be that other than official experts may be called. This, if we accept Mr. Justice RIDDEL'S view, is fatal to any idea of an official, individual or collective, being appointed as a standing referee upon scientific questions to the exclusion of evidence to be adduced by the parties. His view, moreover, is a perfectly just one. Litigants do not seek the law courts, as a rule, from any wish to do so. We may describe some persons as naturally litigious, or define some claims as "bogus," but we must admit at the same time that the defendant in a civil action goes into court because, rightly or wrongly, someone has sued him, and that the accused in a criminal prosecution is not in the dock by any wish of his own. The Crown in turn prosecutes because of the duty to do so imposed upon it by the constitution, and the plaintiff

who seeks damages does so because, in his view, at any rate in the majority of instances, he has a right to enforce which another denies. Could we without grave injustice, and without risking that confidence in our courts which is a source of pride to us all, say to one of the persons suggested above when his case approaches trial, "You may call any witnesses you choose as to other matters and may testify on your own behalf, but for all medical evidence, or at any rate for medical expert evidence, you must take the man the Crown has selected and abide by his opinion on your case"? This is the position so far as the question of excluding medical evidence adduced by the parties is concerned. The possible introduction of a medical assessor to advise the court where a conflict of medical evidence is expected is another matter. Presumably, if such a state of things were to be brought about the medical assessor and the judge would determine medical questions without the aid of a jury so far as those issues were concerned, and such a system would in many ways be far more satisfactory than the present one.

We have spoken of the assessor as advising the court rather than as deciding the point at issue, because we feel that on the whole it is best that the decision should in form be that of the tribunal charged with the responsibility of the whole trial, and we include in the word "trial" the determination of issues under the Workmen's Compensation Act and other matters to which technically, perhaps, the word trial does not apply. The question of who should decide a question of medical evidence, in the sense of being the person whose judgment is publicly proclaimed upon it, is not quite so easy to answer as those may think who would have a medical expert as sole judge in medical matters. The honoured position occupied by our courts is due in a large degree to a not very easily defined mental attitude of the community known as "public confidence." This may, to some extent, be misplaced, or exaggerated, or due to indifference and acquiescence in existing conditions. So far as our jury system is concerned, no thoughtful person who watches the course of litigation attentively can say that it is perfect, independently of those cases in which scientific evidence has to be considered, and no medical man who gives evidence in a court of law, or who reads reports of trials in which medical issues are decided, can claim that the common or, indeed, the special jury is qualified to express an opinion on medical topics, or that the judge himself, with the advantage of legal training and experience gained as an advocate, is of necessity to be preferred. The object, however, to be aimed at is to replace an unsatisfactory system with a better one, and with one which will be so manifestly and certainly better that the general public will have confidence in it, as well as the medical profession, and those persons who may be qualified by education and mental capacity to discriminate. It is also desirable that the weight of responsibility should be shared, and if litigants and the public should look upon the decision of fact as one arrived at by a trained lawyer and a trained scientist jointly the result would probably be its acceptance, with less tendency to question its correctness than if it were that of the latter only.

We have alluded to the need for the assent of the general public, and we use the term in a wide sense. Persons accused of crimes and litigants who claim under the Workmen's Compensation Act do not constitute the most socially or intellectually important class of those with regard to whom scientific evidence is given in courts of law. They belong, however, to sections of the community whose confidence in the administration of justice must be retained, equally with that of their more influential fellow citizens, if justice is to be administered with dignity and acquiesced in with loyalty. The probable attitude of those occupying judicial positions has also to be considered and of the members of the legal profession who practise before them. From such indications as are available it would appear that the increased employment of the medical assessor to assist the judge in the determination of medical issues would be welcomed by these, but that the exclusion of the medical witness would be condemned, and that the procedure desired is that of the assessor guiding the judge in his decision upon particular points. Reference in this connexion may be made to the instructive discussion which followed an interesting paper upon the Workmen's Compensation Act read by Dr. R. J. COLLIE before the Medico-Legal Society on March 23rd, 1909. Several county court judges spoke and bore testimony to the assistance received by them from medical referees as assessors, and the late Sir JOSEPH WALTON, as chairman of the meeting, added his support to their views.

We may take it that the legal profession would approve of the assistance of medical assessors in suitable cases. But can there be evolved no better system of elucidating medical questions in courts of law which would obtain the full confidence of the medical profession? There can be little doubt that the circumstances in which evidence is now given are not satisfactory to medical witnesses, and are not regarded by the profession in general as leading with certainty to the establishment of the truth. The object of any innovation, however, must be to produce something not only new but better. In this connexion we are of the opinion that the presence of a medical assessor on the bench would be welcomed by medical witnesses while giving evidence, or by those medical witnesses, at any rate, whose opinions on such a topic are worthy of consideration. The medical profession, however, would not, we believe, accept for a moment the introduction of any system which enabled questions relating to the physical conditions of their patients to be determined for purposes of litigation without the patient's medical man being entitled to express and explain his own views upon the subject, by describing the facts which have come under his own observation, and to have expert evidence called to support his conclusions. The present position of uncertainty and dissatisfaction has arisen from the nature of the tribunal before which medical evidence has to be given, and not from any unwillingness of the medical man to enunciate his views and to submit them to the test of cross-examination. He only asks that, if this is to take place, and if his testimony is to be weighed against that of a medical colleague who differs from him, the operation should be performed by machinery capable of fulfilling the task assigned to it; and, if we take into consideration all classes of cases and the contingencies which may arise, he would prefer probably

a tribunal which, in effect, would be composed of a medical man and a judge to the sole arbitrament of an official medical expert. In conclusion, we would submit that extension of the duties of medical referees under the Workmen's Compensation Act, making them necessary assessors to county court judges, would afford an excellent means of testing the value of such assessorship and of introducing it, if it stood the test of practical experience, into other tribunals and into trials of all classes where medical evidence has to be considered. We would, however, point out that, before such a system of assessorship can command the confidence of the medical profession, care must be taken to render the position occupied by the assessor unassailable. He must be a man whose professional qualifications for his post are beyond question, selected on account of his fitness to discharge its duties, a fitness which will not depend only upon the possession of scientific knowledge. In these circumstances the remuneration and dignity of position offered will have to be such as will tempt the best men to leave the profession in which they are distinguishing themselves, just as the emoluments and position of a judgeship in the county courts or in the high court induce a barrister to give up his practice and to accept a judicial appointment.

Deaf Children.

WE publish to-day the last of the three exceedingly valuable and important articles in which Mr. MACLEOD YEARSLEY, the Medical Inspector of the Deaf Schools of the London County Council, has discussed the education of deaf or of imperfectly hearing children, and has pointed out the methods by which their infirmities may be minimised and their capacities for usefulness and happiness increased in a corresponding ratio. The articles are remarkable for their continual reference of doubtful or disputed questions to the principles of physiology as the only source of safe guidance; and it is not unreasonable to hope that their influence in tending to the establishment of this position may extend beyond the subjects of the particular infirmity with which it is the author's object to deal. We have often pointed out that education, in so far as it is intended to promote the harmonious development of the faculties of the young, is concerned with a strictly physiological process, and can only be intelligently conducted by the light of physiological principles. It is, in fact, or at least it should be, a branch of applied physiology, but in this country at least it has unfortunately fallen much into the hands of persons to whom physiology is a sealed book, and it has consequently been conducted—and too often has this been conspicuous during the last 50 years—in such a manner as to combine the maximum of effort and of expenditure with the minimum of result. Dr. CLEMENT DUKES once called attention to the curious fact that the education of the upper and middle classes of this country is the only pursuit in which persons of no special or ascertained fitness for it, and who have received no special training, are permitted by public opinion to engage; and he might with equal truth have declared that much of the so-called training bestowed upon the teachers of the poor has borne no discoverable relation to the essential character of the duties for which it was supposed to be a preparation. A pupil teacher was "taught" how to "teach" the multiplication table, and it was expected by all concerned that this table would act upon the youthful intelligence like a laminaria tent upon a constricted channel, and that by its own expansion it would mechanically "expand" the intellect of the pupil. It is largely due to American independence of the routine laid down by forefathers, and to American observation and study of the growth of intelligence in the young, that some prospect of a brighter day seems now to be dawning upon us; but that prospect will hardly be fulfilled until there is a definite recognition that the physiologist must teach the teachers. As far, at least, as the recognition of this principle is concerned, we may hope that the work and position of Sir GEORGE NEWMAN at the Education Office, and the increasing influence upon methods of the medical officers of schools, are alike of good augury for the future.

Mr. YEARSLEY'S main contention is that a deaf child comes into the world with a dormant capacity for articulation inherited from millions of generations of ancestors, and ready to spring into activity under the stimulus afforded by the desire to imitate the persons by whom it is surrounded. This stimulus normally appeals, as far as the faculty of speech is concerned, to the nervous centres of the sense of hearing, and to the motor centres which soon form intimate connexions with them; but in the absence or inactivity of the centres of hearing an equivalent, or nearly equivalent, association may be formed with the centres of sight. The sighted but deaf child, instead of listening for sounds and trying to imitate them, watches for facial and lip movements, learns to attach ideas to them and to reproduce them, incidentally in his efforts to do so producing also articulate sounds which hearing persons can understand. The earlier in life the attention of the visual centres is directed towards the facial movements associated with the production of sound the more easy and more complete will become the power of visually discriminating between them, and of reproducing them in such a manner as to produce sounds intelligible to the hearing. It follows that the one essential condition for enabling a deaf child to take its place among hearing and speaking people is that the training of the visual centres in the required direction should be commenced early and continued uninterruptedly. Under Dr. YEARSLEY'S direction important progress in this direction has already been made in the schools for the deaf of the London County Council; but the most striking evidence of the soundness of the principle has so far been derived from American sources. Mr. YEARSLEY refers to the work of the Misses GARRETT at Philadelphia, and the tenth report of the "Home" of these ladies, issued last November, is now before us. The children are admitted at 3 years of age and are transferred to ordinary schools for the hearing at 9 or 10. We have no space for detailed quotation; but the trustees of the home report that their aim is to surround the young deaf children with the same conditions for acquiring articulate speech with which all hearing children are surrounded, the difference being that sight instead of hearing is the medium used. The use of either natural signs, arbitrary signs, or the manual alphabet is strictly prohibited; no one

in the home is, or ever has been, acquainted with either. Appended to the report are many testimonials from teachers and employers, showing that young people educated at the home during early childhood, and passed thence into the ordinary schools for the hearing, have derived the same amount and kind of benefit as hearing children, and are capable of engaging in ordinary industrial occupations, speaking and understanding speech with almost as much readiness as those around them who can hear. From many other American sources similar evidence is obtainable; and it is sufficient to show that, under proper training, the deaf child need neither be suffered to grow up a mute nor in any way be cut off from unrestricted intercourse with his fellow creatures or from participation in their pleasures and pursuits. But all who have had experience of the system concur in the absolute necessity of excluding every description of sign language if complete success is to be obtained; and Mr. YEARSLEY forcibly points out the mischief which has been done by those who have ignorantly endeavoured to combine things which are mutually destructive of one another.

A grave error, which Mr. YEARSLEY'S articles will do much to dispel, is the common belief that deaf children are of inferior intellectual capacity—a belief which could hardly survive a single visit to a well-conducted school for them. The one thing conspicuous about a class of deaf children is their mental alertness and activity. Deprived of hearing, and dependent upon sight for their knowledge of their environment, their bright eyes are fixed upon the teacher or the visitor, their attitudes are erect, their heads well up, and their attention is keenly given to all that they can see around them. So far as our personal experience will carry us, we can also confirm Mr. YEARSLEY'S belief that they are of exceptionally docile and loveable character. It has often been said that the adult deaf take a somewhat roseate view of human nature, and the fact, if fact it be, was explained by FROUDE on the ground that other people reveal only their best sides to them. "It is impossible," he wrote, "to be selfish or worldly down to the level of a hearing trumpet," and it is probable that the deaf child with favourable surroundings is spared the recognition of a good deal of hastiness or petulance on the part both of its elders and of its contemporaries. For those who are less fortunately situated it would be impossible to feel too much compassion; and it is not the least merit of Mr. YEARSLEY'S work that it points to a method by which compassion may be rendered fruitful of good, not only to the deaf themselves, but also to the community. The articles are too valuable and too full of matter to be summarised, and we can only recommend them to the careful study of our readers. We know of no contributions to educational literature which are so manifestly founded upon knowledge, or which so plainly point out the methods by which the majority of a large and hitherto neglected class of the community can be brought into line with the most efficient of their fellow-citizens. Mr. YEARSLEY starts from sound principles, and proceeds to legitimate deductions from them—deductions which he has enjoyed enviable opportunities of seeing justified in practice. As a benefactor to the deaf he will rank with the late Baroness MEYER DE ROTHSCHILD, to whose school, established in 1870 under the management of the late Mr. VAN PRAAGH, and now conducted with great enthusiasm and discrimination by Mr. SIBLEY HAYOCK, he pays a well-deserved and fitting tribute. We have but one criticism of his work, and it is that, when pointing out that oral instruction of the deaf originated in this country, he does injustice to the memory of a great Englishman in attributing it to anyone in the eighteenth century. JOHN WALLIS, Savilian Professor of Geometry at Oxford, and one of the founders of the Royal Society, who, in the words of MACAULAY, "placed the whole system of statics on a new foundation," exhibited to King CHARLES II., and to the Society, in 1663, a "deaf and dumb" youth, named DANIEL WHALLEY, the son of a friend, whom he had taught to speak and to understand speech. WALLIS'S method was applied in a few other cases, and its origin may be traced to his treatise "De Loquela," on the methods of production of articulate sounds. It was therefore no chance discovery, but the ripe fruit of careful and scientific investigation.

Annotations.

"Ne quid nimis."

THE DEATH OF PROFESSOR VAN'T HOFF.

BY the death of Professor Van't Hoff at Steglitz, near Berlin, on March 1st, chemical science is bereft of one of its most brilliant exponents. Van't Hoff's great and valuable researches into the realm of stereo-chemistry had their starting-point in the views of Kekulè on structural chemistry. In 1867 the use of models as well as of "graphic" formulæ to represent the linkage of atoms in the molecule came into vogue, when Kekulè pointed out that the models most in favour, consisting of spherical bulbs joined together by rods, were no better than diagrams, since it was impossible to display combination between two atoms by more than one unit of valency, while, further, everything was represented as lying in the same plane. He suggested that by using a sphere to represent the atom of carbon, and four rods to represent its four affinities placed in the directions of four hexahedral axes ending in the faces of a tetrahedron, these difficulties could be got over, and two such models placed together could be used to represent union by one, two, or three units. Van't Hoff developed this idea with most brilliant success. With Van't Hoff, however, must be associated Le Bel, both of whom advanced an identical theory almost simultaneously and independently in 1874. The subject they studied was the arrangement in space of the four atoms or groups united to a tetravalent carbon atom, and they assumed that each of the several atoms or groups with which a carbon atom is united is situated at some point on one of four different lines which are symmetrically arranged in the space surrounding the carbon atom. The existence of isomeric optically active compounds receives a charming explanation on this theory. At all events, it is easy enough to determine, on this assumed arrangement in space of the carbon atoms, whether a compound can exist in only one form or in more forms than one. Out of this grew one of the most beautiful developments of modern chemistry, an explanation of why substances, though being identical in composition—having, that is to say, the same number of atoms in the molecule—yet may exhibit different properties. Van't Hoff worked equally successfully upon the question of solutions. He recognised an analogy existing between

the state of substances in solution and the same in the state of gas, and so the law of Avogadro—that equal volumes of different gases at the same temperature and pressure contain the same number of molecules—was seen to apply to solutions as well as to gases. This development has given considerable impetus to the study of the great physiological processes of the human body. Van't Hoff's record of successful researches is a splendid one, and chemical science is mourning deeply the loss of one of the most distinguished labourers in its field.

THE MEDICAL BRANCH OF THE NAVY LEAGUE.

IT is no part of our function to engage upon either side in the political controversies of the hour. That, however, does not preclude us from occasionally expressing a word in favour of causes which all healthy-minded citizens must necessarily have at heart. We publish this week a letter from Sir Richard Douglas Powell, in which he draws attention to the existence of a medical branch of the Navy League, and recommends it to the notice of the profession. We are happy to support him. The function of the Navy League is for the most part educational. It endeavours to bring before the citizens of our Motherland and of her dependencies the part which the navy has played in our past history, and our absolute dependence upon it in the present day for our existence as a first-rate power and as a united empire. Endeavours such as these are surely worthy of all the support we can give, and we feel that the medical branch of the Navy League may well be capable of most useful work. The names upon its committee are representative of the larger hospitals, and we sincerely hope that many members of the profession will see their way to joining the branch and widely extending its scope for usefulness.

PROPER MANAGEMENT OF FOUNDLING CHILDREN.

Dr. Dwight Chapin of New York read before the Section on Pediatrics of the Academy of Medicine at a recent session a paper dealing with the management of foundling children. Dr. Chapin's main argument was that infants should not be kept in large institutions, on account of the fact that when they are massed together they die very quickly. He recommended that foundling infants should be boarded out, and that they should be overlooked in the house in which they have been placed by nurses and medical men. He further proposed that the large institutions and asylums for the care of babies should be abolished and that small collecting stations should be substituted for them. These stations would act merely as clearing houses in which the infant's physical condition might be studied for a day or so. When this had been done and the most suitable food had been decided upon, the infant would be boarded out in the vicinity, where it could be under constant oversight by a physician and a nurse furnished by the station. This plan has been carried into effect by Dr. Chapin on a small scale under the auspices of the Speedwell Society, and a station has been established at Morristown, N.J. In the operation of this work the aim has been to emphasise the following features: 1. Boarding out in a district noted for its healthful conditions. 2. Constant attention to diet and hygiene on the part of a medical man and nurse who are familiar with this class of cases and competent to deal with them. 3. The infants are kept as long as necessary; in fact, until feeding is regulated and digestion and assimilation are improved sufficiently to result in an increase of weight. The work is continued during the entire year. 4. The training in a given neighbourhood of a number of foster-mothers, who by constantly taking such infants into their homes become fairly expert in handling them under conditions totally unlike those offered by the best institutions. The results obtained from the methods practised at the Speedwell Society Station at Morristown have been satisfactory. The death-rate of infants boarded out in this manner has been less by far than in large institutions, and the cost has also been considerably less. The justification of institutional care lies in increase of efficiency by the employment of adequately trained persons at the least possible cost through the concentration of labour and the economic handling of supplies. Its chief objection is the lack of individualism and the blurring of the human personal element by the necessarily machine-like operation of institutional methods. If the plan above suggested should prove on more extended trial to be really less costly than the institutional care of infants, and the process of training numerous professional "mothers" can be extensively followed, it would seem clearly a decided improvement at all points on more usual methods.

THE WEATHER OF LAST MONTH.

THE general state of the weather of the last month over the British Isles, and to a considerable extent over the continent, underwent a great change after the 13th. During the earlier days there was scarcely any rain, the dry spell which set in about Jan. 12th being continued with only a partial break here and there until the 10th, or for about four weeks. There was, however, in spite of the dryness, little sunshine, and many of the days were marked by mist or a depressing gloom. The temperature, too, was low, and there was sufficient frost to allow a very brief indulgence in skating on some of the shallow waters within a few miles of the metropolis. All parts of the south and south-east of England recorded sharp or severe frost during the first three nights; at Kew Observatory the sheltered thermometer fell as low as 22°, and at Greenwich to 23°. There was also a return of frost for a few nights after the 9th, but the day temperature was then relatively high. With the shift of wind to south and south-west at the beginning of the unsettled period rain fell in some portion of the kingdom every day and on many days over the whole of it, but, as so frequently occurs in this country in winter during unsettled weather, there were several days of brilliant sunshine and many more with quite a fair quantity, while the air, sweeping across the country from the south-west or west, often at the rate of between 20 and 30 miles an hour and sometimes between 35 and 45 miles an hour, had no time to lose its Atlantic mildness, and the temperature of both day and night was much above the ordinary figure for the time of year. The frequent rain was not at all heavy except at times in the West of Scotland, and considered as a whole the aggregate fall was below the normal for February. And the normal February, in spite of the old adage about "fill-dyke," is about the driest month of the 12 in almost all parts of these islands. At Kew Observatory the sheltered thermometer descended below the freezing point on eight nights, and at Greenwich and Hampstead on seven, while on ten afternoons the temperature was as high as 50° or above at Kew and Greenwich and on nine at Hampstead. Owing to the occasional cloudless or nearly cloudless skies after the 11th the sunshine was in excess of the average in some parts of of the kingdom, the excess being especially large in London. At Westminster the total number of hours was 54, or 20 more than the average; at Greenwich the number was 64 hours, or seven more than the average; at Kew 67 hours, also seven more than the average; while at Hampstead, where the observations do not yet afford a trustworthy average, there were 70 hours. The latter

portion of the month was very windy, and the air inhaled in London and the large cities of the Midlands and the North was, only a few hours previously, rushing over the Atlantic or the Bay of Biscay. In the South of Europe the earlier days of the month were cold and fine. Sharp frost was recorded again and again throughout Italy, and on the Riviera the sheltered thermometer fell as low as 27° on the 1st. Italy was, however, much colder than the Riviera, and on the 9th Naples experienced a lower temperature than has London during the whole winter, the thermometer falling to 19°. Further south, at Brindisi, the temperature on the same occasion was as low as 28°, while a furious gale from the north brought a prolonged fall of snow. Palermo and Malta only shared in a very moderate degree in the cold weather, the thermometer rising to between 50° and 55° every day and sometimes going higher, while the weather was generally fine. The last fortnight was very different both in Italy and on the Riviera: the cold wind current died away, and the general state of the sky being fair the sun could assert its growing power, and instead of being frosty the nights became relatively mild, while some of the afternoons were excellent imitations of spring. Temperatures of 60° and above in the shade became almost common, while towards the end of the month the genial warmth of 65° was registered on at least one afternoon, but at Malta and Palermo the approach of spring was even more marked, the thermometer rising to a little above 70°, and a similar figure was recorded on the coast of Algeria. Night frosts were very common at Biarritz until the month was well advanced, but a really cold day was seldom experienced, and although there was less sunshine than on the Riviera the weather was mostly very pleasant. Switzerland and the surrounding part of the continent enjoyed excellent weather for the winter sports, experiencing almost arctic cold until after the middle of the month. The sheltered thermometer dropped to nearly zero Fahrenheit even at ordinary levels, while among the mountains the frost was much more intense. The day-time, which was often very bright, had relatively little effect on the temperature, and for a long period there was nothing resembling a thaw. Subsequently there was a decided increase of temperature, and later in the month rain was more frequent than snow.

THE DURATION OF INFECTIVITY OF ENTERIC FEVER.

IT is now an accepted fact that in convalescence from certain infectious diseases patients may harbour in their bodies the pathogenic organisms of these diseases, and in that way be a source of danger to other people. In diphtheria the bacillus may be found in the throat for some time after all symptoms of the disease have disappeared. In pulmonary tuberculosis, also, tubercle bacilli may be found in the sputum when all clinical evidence tends to prove that the disease has been arrested. Typhoid carriers are now well known to exist, and it is an important point to ascertain if possible how long patients convalescent from enteric fever may pass typhoid bacilli with their stools and urine. In another column we publish an article by Dr. Alfred Harris dealing with this subject. He states that in order to estimate the length of time during which bacilli may be excreted a routine examination of the stools has been carried out during the last few months in the case of all enteric fever patients treated in the isolation hospital at Southampton. There is considerable difficulty in carrying out such an investigation owing to the multitudes of bacilli which flourish in the intestine, and it is not easy to devise a method by which the colonies of the typhoid bacillus can with certainty be isolated. Dr. Harris explains the methods which have been adopted. The researches of Conradi and Drigalski are well known, and these observers have done much to facilitate the necessary separation of the colonies. Dr. Harris found, however, McConkey's neutral-red bile-salt agar to be the most reliable culture medium. The results of his investigations are shown in tables, and some interesting points arise. One is the great variability which exists in the period when a negative result was obtained. In some instances between 40 and 50 days elapsed before the bacilli disappeared. In one instance a positive result was obtained 78 days after the temperature had become normal. Another point is that the persistence of infection bears no relation to physical signs. For instance, the case already mentioned, in which the bacilli persisted in the stools 78 days, had been a mild one with but little diarrhœa. The whole subject of carriers in infective diseases is a most important one from the point of view of prophylaxis. At present our knowledge is scanty concerning the length of time that the bacilli remain active in various conditions, but with investigations being carried out on the lines which Dr. Harris has adopted the exact danger of infection from this source should become known.

THE CHILDREN OF ASCLEPIUS AND THE GOOSE.

IN a recent number of the *Archæological Journal of Athens* M. Svoronos publishes a reproduction of a charming ancient Greek statuette representing a boy and a goose, which has recently been added to the city's museum. There are numerous examples from Greek antiquity of these groups; frequently the child is strangling the bird, and hitherto they have been considered merely as a curious artistic conceit. But M. Svoronos argues that really they have a religious and mythological significance. The goose was a sacred bird of Asclepius, and all these goose and child groups, whose original location can be ascertained, come from sanctuaries of Asclepius. The newly-found poems of Herondas describe a similar group in the deity's temple at Cos. M. Svoronos maintains that in these works the boy represents Ianiscos, youngest son of Asclepius, when he is strangling the goose, the bird being a symbol of the pestilence-producing pools and marshes, and so the statues typify the healing of fevers by Asclepius and his family. Other of the groups depict Asclepius himself as an infant, or one of his daughters, with a goose. The Spinario in the Capitol at Rome is, however, he thinks Podalirius, another son of Asclepius. Pliny mentions a famous piece of sculpture by Boethius of a boy strangling a goose, a work which must be later than the one Herondas describes. Probably many of the statuettes are copies of one or other of these works. M. Svoronos has also succeeded in definitely ascribing the figures in the famous Asclepian relief found in 1885 and now in the Athens Museum. The seven personages are: Asclepius, Machaon, Podalirius, Epione, Panacea, Iaso, and two suppliants, the three dogs representing those kept at the shrine of the god.

SPOROTRICHOSIS.

THE first account of a disease due to a sporothrix was given by Schenck in 1898, who had found it in a patient with multiple subcutaneous abscesses along the course of the lymphatics of the arm. Since then many other cases have been described, chiefly in France and America, but so far as we are aware no certain cases of the disease have hitherto been described in England. In the present issue of THE LANCET Dr. E. von Ofenheim has reported a case which was under his care; the patient suffered from a number of enlarged lymphatic glands in the neck and a swelling over the tibia. The cultures taken from the fluid withdrawn by an aspirator from the swelling

on the tibia grew an organism somewhat like a yeast, but differing from it in several points, and Dr. Ofenheim is inclined to believe that the organism is a sporothrix. So far as can be judged from the data supplied it appears to us that his diagnosis is probably correct. Dr. Ofenheim in his report does not mention whether potassium iodide had been administered to his patient. This drug has a remarkably active effect on sporotrichosis, and it might be well to see whether it has any effect on the case recorded here. It is difficult in these cases to make a diagnosis merely from an examination of the pus withdrawn, but by the cultures it should be possible. Until comparatively recently the fact that a lesion was removed under the influence of potassium iodide was considered to be sufficient to make certain a diagnosis of syphilis, but it is now fully recognised that several other conditions, such as actinomycosis, blastomycosis, and sporotrichosis, also respond readily to this drug.

PLAGUE AND RODENTS IN CALIFORNIA.

WHILE we are considering how to deal, if in the unfortunate event it should become necessary, with the dissemination of plague in East Anglia, the very same problem is facing our cousins in California, where the ground squirrels have long been known to be seriously infected. Details are given in an interesting paper in the *Military Surgeon* for January, from the pen of Passed Assistant Surgeon W. C. Rucker of the United States Public Health and Marine Hospital Service, from whose account we quote. Plague came to San Francisco in 1900, brought by sugar-ships from Hawaii; they unload in Costa County, 20 miles north of San Francisco, where it was noted in 1901 that a deadly epidemic raged among the ground squirrels (Citellus Beecheyi), "the most prevalent small mammals in that county." No plague infection was found among them at that time. The epidemic almost exterminated them, and they did not again become numerous until 1908. Plague lasted four years in San Francisco, killing 225 people. After 1904 only scattered cases occurred, and these, it was noted, in people who had no chance of infection by rats, but who had shot, or trapped, or eaten ground squirrels. In 1907 plague again broke out, the squirrels were suspected, and in 1908 a large number were examined and four were found to be plague-infected. In 1909 the Public Health and Marine Hospital Service, "which had charge of the plague situation" in California, took the matter in hand, and found infected squirrels in almost all parts of Costa County, also beyond it. Ground squirrels are infected over an area of miles one-seventh of the State of California. They are not themselves very widely distributed, but the wood rat (Neotoma fuscipes), which is found nearly all over the United States, has also been known to be plague-infected, which makes the problem more troublesome. The ground squirrel's flea (Ceratophyllus acutus) transmits plague to rats, and the rat's flea (C. fasciatus) will infect the ground squirrel, and those who catch or cook ground squirrels risk contracting plague from their fleas. The Public Health and Marine Hospital Service are studying the life-history and distribution of the squirrels most carefully, with a view to their eradication by poisons, by encouragement of their natural enemies, and by the use of noxious and explosive gases. A ground squirrel is supposed to eat food to the value of 4*s*. yearly, and this financial loss and the desire to avoid plague are uniting the State and county authorities, the farmers' clubs, and the individual landholders in a combined attack upon the squirrels. The United States has a favourable position for this contest, supported as it is by the permanent Federal organisation and the well-trained officers of the Public Health and Marine Hospital Service, whose efforts will, we trust, achieve success. Passed Assistant Surgeon Rucker's paper should be widely read—perhaps the Society for the Destruction of Vermin might ask his permission to republish it here.

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE UNIVERSITY OF LONDON.

AT a recent Comitia of the Royal College of Physicians of London the report of a committee of the College appointed to consider the report dated Feb. 15th, 1910, of the delegates appointed by the Royal Colleges in 1908, was received. The report of Feb. 15th of the joint delegates had reference to the establishment of a system of conjoint examination between the Royal Colleges and the University of London in accordance with Statute 123 of the University.[1] The report suggested that the Royal Colleges should jointly give evidence before the Royal Commission, now sitting to inquire into the working of the reconstructed University, on the present disabilities of the London student; and on the desirability of an association between the Royal Colleges and the University in a scheme for granting, on terms, the medical degrees of the University with the diplomas of the Colleges to the students who have completed at least four years at a London medical school. A scheme as a basis of such negotiation was set out in the report, which concluded with general expressions as to the desirability of the Royal Colleges preserving their autonomy in every other respect. This report was, on March 14th, 1910, referred to a large committee of the College for report to a future meeting of the College on the whole subject, and the large committee has now advised the College that it is, in its opinion, inadvisable that the College should take any steps to promote the scheme of conjoint examinations outlined in the report of the joint delegates. The report of the large committee was adopted, whereby, in our opinion, an excellent opportunity was lost for improving the professional status of the London student.

MEDICAL OFFICERS' FEES IN INDIA.

THE following revised rules have been issued by the Government of India, applicable to British India and native States, regarding the receipt by medical officers of the Government of fees (including honoraria or presents) which may be offered for services rendered or for professional services in certain cases:—

1. Whenever attendance, whether for an ordinary visit, a consultation, a confinement, or a surgical operation on a ruling chief or his family or dependents, or on an Indian of position who holds a hereditary title conferred or recognised by the Government of a rank not below that of Raja or Nawab, or his family or dependents, involves the absence of a medical officer from his station, he shall be permitted to demand or receive such fees as may be arranged between himself and the person employing him, provided that he does not, without the special permission of the local government, obtained as provided below, demand or receive, in addition to his travelling expenses, a higher fee than Rs.500 (£33 6*s*. 8*d*.) a day for the first three days, and Rs.250 (£16 13*s*. 4*d*.) a day thereafter; the full daily fee being given for every complete period of 24 hours' absence with a proportionate fee for periods of less than 24 hours.

2. For similar attendance not involving absence from his headquarters a medical officer may demand or receive fees in accordance with the scale which he has fixed for his patients generally, and in the case of operations and confinements he may accept fees equal in amount to those current in similar circumstances in the profession in the United Kingdom.

3. Before accepting or demanding for a ruling chief or Indians of position, as referred to in Rule 1, a fee in excess of the rates laid down in the Rules 1 and 2 above, a medical officer must report the case confidentially to the local administrative medical officer, who will obtain unofficially and communicate to him the orders of the local government. When taking the orders of Government administrative medical officers will be careful not to disclose any of the medical particulars of the case.

4. Local governments and administrations shall have full power to dispose of all cases so reported to them, but shall be at liberty to consult the Director-General, Indian Medical Service, or to refer any particular case for the orders of the Government of India.

Granted the necessity for any regulations at all in these

[1] THE LANCET, March 19th, 1910, p. 814.

matters, the Government of India appears to have been advised wisely. Ridiculous restrictions to legitimate practice have been withdrawn, while adherence is assured to a proper scale of charges in the matters of operations and confinements.

CRIMINAL STATISTICS AND PENAL REFORM.

THE monthly record of the Penal Reform League for March, which has been forwarded to us by the honorary secretary of the league, Captain Arthur J. St. John, takes occasion, in referring to the recently published Blue Book on Criminal Statistics,[1] to discuss the cause of the alleged relaxation in public sentiment with regard to crime, and suggests that one reason for this feeling, so far as it exists, may be found in the somewhat meagre results hitherto attained by our penal methods. In this connexion the high rate of recidivism is instanced as a proof that punishment does not seem to be either deterrent or reformative, and it is asked whether failure may not be due, as has been recently maintained by Mr. Thomas Holmes, secretary of the Howard Association, to the fact that a considerable proportion of recidivists are mentally defective and are quite unamenable to ordinary penal treatment. It is very satisfactory to find that intelligent lay opinion is awakening to this serious failing in our machinery for dealing with the criminal; and it is still more gratifying to observe that the consideration of this point is leading to the further inference that no penal methods can be satisfactory which are not based on an adequate knowledge of the individuality of the criminal. In impressing this view on the public the Penal Reform League should do extremely useful work, and as the league apparently includes in its membership several persons of distinction in the political world, it may perhaps be able to exercise some propagandist influence on our legislators, who, if we may judge from various incidents in the last few years, are in no hurry to recognise the rôle of science in the treatment of the criminal.

A NEW SIGN OF PLEURITIC EFFUSION.

IN the *Progrès Médical* M. Félix Ramond has called attention to a new sign of pleuritic effusion which he terms "the sign of the spinal muscles." He has found that on the affected side the erector spinæ is in a state of reflex permanent contraction. On inspection of the lumbar region the muscular mass appears more prominent and broader than on the sound side. On palpation the muscles give a sensation of hardness and resistance which may be compared to that of a cord of indiarubber slightly stretched, very different from the softer sensation given by the muscles on the sound side. If the upper attachments of the longissimus at the level of the sixth and seventh dorsal vertebræ be struck with a percussion hammer at a distance of two or three finger-breadths from the middle line the sensation given by palpation of the lumbar region is still more characteristic; the muscles vibrate under the finger and sometimes the contraction is so strong as to be visible. However, this last phenomenon is not so characteristic as the others, for it may be found in patients with exaggerated muscular irritability, particularly cachectic, alcoholic, and neurasthenic persons. These three phenomena, which are obtained by inspection, palpation, and percussion respectively, may all be present together or only the enlargement of the muscular mass may be evident. If the other phenomena seem absent or ill-marked they may be evoked by telling the patient to bend slightly alternately to one side and the other. Normally the spinal muscles on the side to which the body is bent become completely relaxed and soft, while those on the opposite side become tense and hard. In pleuritic effusion, when the body is bent towards the affected side, the muscles on that side do not completely lose their tone, and when the body is bent to the opposite side their hardness increases. In certain cases of pleuritic effusion M. Ramond has found to his surprise that the sign was present in slight degree on the sound side. With this there was marked dulness in Grocco's triangle. In three out of seven such cases he found on paracentesis a little fluid in the pleura which was supposed to be normal. He does not claim that this explains all the cases in which Grocco's sign is present, but he concludes that when the sign of the spinal muscles is present in slight degree on the side supposed to be sound a little effusion on this side may be suspected. The sign persists for three or four weeks after recovery from the pleurisy and may therefore be used for retrospective diagnosis. In some cases it persisted much longer—six months, nine months, and in one case three years. Its persistence is of bad significance and indicates that the inflammatory process has outlasted the effusion, and that recovery is only apparent. M. Ramond has found the sign constant in "primary" pleurisy and present in 94 per cent. of cases of pleurisy complicating old pulmonary tuberculosis. It was present in 3 cases of pleurisy in Bright's disease, but was absent in 3 out of 8 cases of hydrothorax of cardiac origin. It was present in 4 out of 7 cases of empyema. The following case is of particular interest. A youth, aged 19 years, had pain in the side and effusion three weeks after a severe contusion of the thorax. The sign of the spinal muscles was present. Puncture yielded slightly turbid fluid. Subsequently the effusion became purulent and the sign disappeared. It seems, therefore, that the sign has a tendency to disappear as the effusion becomes purulent. The sign seems to be peculiar to pleurisy with effusion and absent in other thoracic affections, though observations on this point are not yet sufficiently numerous. Thus, it was absent in 3 cases of pneumothorax without effusion and in 3 out of 5 cases of pneumonia. In the other 2 cases of pneumonia there was probably some inflammation of the pleura. The value of this new sign is increased by the fact that, excepting dulness, all the signs of pleuritic effusion are more or less inconstant.

PIONEER MEDICAL WORK IN AUSTRALIA.

IN an address to the members of the Women's Institute last week Miss Amy Hughes, general superintendent of the Queen Victoria's Jubilee Institute for Nurses, gave an interesting sketch of the difficulties of getting and of rendering medical assistance in the outlying townships and scattered hamlets of Australia. Often one farm may be 20 or 30 miles from the next habitation and 130 miles from the railway. Ordinary practice under such conditions is impossible, and Miss Hughes explained that one of the first acts of a medical man after settling in a new township is to open a small hospital. News of this soon spreads to the outlying farms and hamlets, and patients come in either for accidents or illness, glad to avail themselves of the only possible means of receiving medical treatment. Of course symptoms are often aggravated and complications set up by the long journeys over rough roads; but these miniature hospitals are fitted in a remarkably up-to-date manner with modern appliances, while surgery, owing to the prevalence of accidents in the mining and smelting districts, is extensively practised. When the demand exceeds the supply of the four or five beds with which the hospitals commence the State comes to the rescue, and for every £1 raised by the inhabitants of the township

[1] THE LANCET, Feb. 25th, 1911, p. 519.

gives another £1 for expenses of building and maintenance. The medical man can be communicated with by means of the telephone, which is carried to most of the hamlets and settlements, and further to facilitate matters the Government has placed receivers on the line at various points; into these messages may be placed from houses on or near the line, and are collected by the "boundary rider" on his rounds and taken to the nearest call-office. To certain districts a train goes once a fortnight, and even then to reach the settlements beyond the journey has to be finished on camel-back, a circumstance which will surprise many of our readers.

CAMPING OUT IN TUNISIA.

A CIRCULAR that has reached us from Tunis opens up a pleasant vista of a new form of "rest cure"—viz., camping out in the desert. The season is stated to last from October to May, but personal experience leads us to infer that mid-winter is a by no means agreeable season even in the desert, seeing that though the sun be warm the northern blasts are piercing and the nights are extremely cold. Assuming favourable climatic conditions, we can well imagine that a properly organised excursion would afford a delightful and restful holiday for persons whose vitality has been sapped by social or professional excesses. There remains the question of congenial companions, a risk which it is almost necessary to incur on account of the greatly increased expense when only one or two persons are catered for. The tariff, which for more than three persons is fixed at 40 francs per head per day (rather over 30s.), is 80 francs for a single person, 70 francs for each when there are two, and 65 francs when there are three—not exorbitant sums in view of the multiple preparations that have to be made. Tunisia is out of the beaten track, but is perfectly safe for travellers within prescribed limits, and it affords a wide range of objects of interest. There are venerable ruins in abundance, remarkable hot springs, and, above all, the "wide quietness" of the illimitable desert with its ever strange, wandering inhabitants, and its numerous oases. The dry, invigorating air, the marvellous contrasts of sky and sun, the brilliant nights, the trackless sands, the thousand and one incidents of a nomad life, freed as far as may be from the disadvantages inherent thereto, and life absolutely in the open air where the silence is at times almost tangible—these are features which, in conjunction with the total absence of disturbing influences from work-bound climes, constitute a rest-cure in the largest and best sense of the term. From inquiries we have made there is every reason to believe that the scheme is perfectly practicable, and those of our readers to whom a prolonged holiday under these conditions appeals can place themselves in communication with Messrs. Pernull and Myddleton, 39, Avenue Jules Ferry, Tunis.

THE King has approved of the nomination of Mr. J. Pringle, M.B. Aberd., C.M.G., and Mr. J. E. Ker, L.R.C.P. Lond., M.R.C.S. Eng., as members of the Legislative Council of the Island of Jamaica.

IN our list of New Year's honours we omitted to note that Major R. J. Blackham, R.A.M.C., sanitary officer of the First Division, Indian Army, received the Kaiser-i-Hind medal of the Second Class.

COLONIAL MEDICAL SERVICE.—*West African Medical Staff:* Mr. H. C. Jeffreys, medical officer, Sierra Leone, has been transferred to Northern Nigeria, and Dr. C. S. Thompson has been selected for appointment to the staff and assigned to Southern Nigeria.—*Other Colonies and Protectorates:* Dr. E N. Darwent, resident surgeon of the Colonial Hospital, Trinidad, has been appointed district medical officer, Arima district, Trinidad.

A FORGOTTEN PROPHECY OF THE MICROBIC THEORY OF INFECTIOUS DISEASE.

BY CHARLES SINGER, M.A. OXON., M.R.C.P. LOND.,
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IN 1877 Louis Pasteur, by a series of brilliant generalisations based on innumerable experiments, was able to state that—

> Anthrax is the disease of the bacteridium as trichinosis is the disease of the trichina, as itch is the disease of its special acarus, with this circumstance, however, that in anthrax the parasite can only be seen through a microscope and very much enlarged.

Although the microbic theory thus set forth by the great investigator was built on the knowledge acquired by himself and his contemporaries, it yet had its roots in a more remote generation. Without going back as far as Fracastor,[1] who already in the fifteenth century had some idea of "the seeds of disease," there was in the early part of the eighteenth century a group of men who made more or less confused efforts to associate the new discoveries of microscopic life with the obscure and mysterious phenomena of infection and with the occurrence of epidemics. The clearness and definiteness of the views of one of these writers is, however, very remarkable, and it is strange that a man who foresaw with such distinctness some of the most important modern biological discoveries should have been so completely forgotten.

In the year 1720 there saw the light in London a small volume bearing the title, "A new Theory of Consumptions: more especially of a *Phthisis*, or *Consumption* of the *Lungs*, wherein ..... *Enquiry is made* concerning the Prime, Essential and hitherto accounted Inexplicable *Cause* of that Disease, so very *Endemick* to this Nation ....." by one Benjamin Marten, M.D. In the course of this book Marten sets forth the various hypotheses of the ancients as to the nature of infection, together with the views that were current in his day. Dismissing all these as inadequate, he gives his own conclusions, which the reader will recognise as being neither more nor less than the germ theory of disease as we have it to-day, clearly conceived and applied, not only to consumption, but also, it is interesting to note, to such conditions as syphilis, rheumatism, and leprosy, as well as to small-pox, measles, plague, and the common cold.

In what follows Marten's quaint language and spelling have been preserved, and beyond the addition of headings for the guidance of the modern reader and a few small changes in order the matter is exactly as he wrote it.

A General Statement of the Theory.

The *Original* and *Essential Cause* then, which some content themselves to call a vicious Disposition of the Juices, others a salt Acrimony, others a strange Ferment, others a malignant Humour (all which seem to me dark and unintelligible) may possibly be some certain Species of *Animalcula* or wonderfully minute living Creatures, that, by their peculiar Shape, or disagreeable Parts, are inimical to our Nature; but, however, capable of subsisting in our Juices and Vessels, and which being drove to the Lungs by the Circulation of the Blood, or else generated there from their proper *Ova* or Eggs, with which the Juices may abound, or which possibly being carried about by the Air, may be immediately convey'd to the Lungs by that we draw in, and being there deposited as in a proper *Nidus* or Nest, and being produced into Life, coming to Perfection, or increasing in Bigness, may by their spontaneous Motion, and injurious Parts, stimulating and perhaps wounding or gnawing the tender Vessels of the Lungs, cause all the Disorders that have been mentioned, viz., a more than ordinary Affiux of Humours, upon the Part, Obstruction, Inflammation, Exulceration, and all other the *Phenomena* and deplorable Symptoms of this Disease.

The Possibility of Intra-uterine Infection.

Nay it will not be difficult to suppose it possible, that as the Fluids of our Parents might abound with many Species of *Animalcula*, so the *Ova* or Eggs of them may have been communicated to us, or convey'd into our Fluids with the Nourishment we receiv'd through the *Umbilical* Vessels, even whilst we were in the Womb, and may possibly lie latent in us for a longer or shorter Term of Years, till either our vessels are become of a fit largeness to afford 'em a proper *Nidus* or nest, or our Juices of such a Property as is fit to nourish and produce them into Life.

And thus we may possibly account for several Diseases to which we are liable Hereditarily. This may be one way perhaps by which the Small Pox is convey'd from Parents to Children, from Generation to Generation; which Disease I am not only apt to think is primarily caused by inimicable *Animalcula*, or wonderful minute Animals in our Fluids, but also verily believe, it may be certainly prevented, especially

[1] See Fracastorius, by W. Osler, Proceedings of the Charaka Club, vol. ii., 1904.

in Adults or grown Persons, by destroying the very Essence of the Distemper. .....

Specific Diseases due to Specific Organisms: Plague, Small-pox, Rheumatism, Phthisis.

And as it is reasonable to suppose that there are various Species of *Animalcula*, so of Course they are of various Magnitudes, of different Shapes, and have peculiar Parts ..... so various Diseases, more or less sudden and pernicious may be caused (by them).

For how can we better account for the regular types, the Small Pox, Malignant, and all other Continual and Intermitting Fevers, as well as many other Distempers, keep, and the peculiar Attributes and *Crises*, *etc.*, they have, than by concluding they are severally caused by innumerable *Animalcula*, or exceeding minute Animals that variously offend us according as their Species are different, and as their peculiar Shape and Parts are more or less injurious to our Fluids and Solids. .....

By what has been said, I think ..... there is possibly no Ulcer or ulcerated Matter, but what is stock'd with *Animalcula*, and as these are of different Species and more or less capable of injuring the Parts in which they are bred or lodged, so those Ulcerations may be more or less stubborn or Inveterate.

Epidemic Disease in General in both Human Beings and Animals considered in the Light of the Theory.

And as we may reasonably imagine that each Species of such *Animalcula* or exceeding minute Animals, keep together in vast Numbers, as we find the Species of such Living Creatures as are big enough to be seen by the bare Eye, delight to do, as Shoals of small Fish, and swarms of flying Insects, so we may easily conceive, if this Theory be admitted, how it happens that sometimes a pernicious Disease becomes Epidemick or almost general of a sudden, without respect to either Age or Sex.

How Distempers happen to rage in one Year, or Season of the Year, or in one Country or Part of a Country, more than in another, as the Plague, Pestilential and other Fevers, Small Pox, Measles, and several other Diseases, and how they are spread by Degrees, and are communicated from one Person, and from one Country to another, may by this Theory perhaps be more easily explain'd than by any other.

What way can we better account for Coughs, that become at some particular Times *Epidemical* or almost Universal, and that indifferently as to the Season of the Year, than by this Doctrine? As also for several other Distempers that we find at some Times not only to afflict Men but Destroy Beasts.

It is allow'd by all the Learned, that most Nations are infested with Distempers, that in an especial Manner are more peculiar to them, than to others, yet it is certain that some such Diseases may be, and often are transplanted into Distant Countries, and sometimes flourish as much in a new Climate as in that from whence they came; thus it is generally supposed that *Europe* is indebted to *America* for the Venereal Disease, as I am inform'd that is to *Europe* for the Small Pox, of which we made them a present, in return for the *Grand One* they made us.

If it be once allow'd that the Plague, Pestilential and other *Epidemick* Diseases are caused, and carried on by very minute volatile Insects, we may then easily conceive how they are conveyed to and from Distant Countries or Climates, viz.: by such Volatile *Animalcula* or their *Ova* or Eggs being deposited in the bodies or Cloaths or Goods of Travellers, etc.

Leprosy.

The Plague of Leprosy mention'd in *Holy Writ*, to effect not only the *Jews* but their cloathes, and the very walls of their Houses, (known by greenish or reddish Streaks eat into the Walls, &c.) as described in the 14th chapter of *Leviticus*, was perhaps propagated by means of imperceptible volatile animals.

Scabies and Syphilis.

We find some diseases are apparently communicated from one person to another by Contact or Touching only, of which the Itch and the Venereal Distemper are eminent Instances; that the Essential cause of the former disease, is a vast number of Minute Animals, that by their spontaneous Motion and injurious Parts make Furrows under the *Epidermis* or Scarf Skin, may be demonstrated by viewing through a good Microscope a small Portion of the Humour contained in the little Bladders that arise in that Distemper between the Fingers, &c., in which may be perceived abundance of ill shap'd Creatures, that by nestling under the *Cuticula* or Scarf-skin, stimulate the Nervous Fibres and Cause the trouble some sensation of itching *etc.*

Some of these minute Insects contain'd in a very small Part of that Humour, fixing upon a sound Person's Skin, either by shaking Hands with an Itchy Person, or wiping with the same Towel, or drawing on one of his Gloves &c., will soon insinuate into the Pores, and there increase and multiply and quickly act the same Part in that Person, as in the other, from whence the Disease was received, as innumerable Examples convince us.

And I conceive the latter, or Venereal Disease to be communicated after the same Manner; only as we may conjecture the *Animalcula* abounding in the purulent Matter flowing from the small Ulcers in that Distemper are of a different Species, Shape and Magnitude, from those of the Itch, they are not capable of insinuating themselves into the external Pores of many other Parts of the Body, so easily as into those of the secret Parts, which are large, &c.

Not All Distempers are of Microbic Origin.

But I would not be understood to advance that all Distempers are caused by them; I would urge only the possibility and likelihood of their being the Essential Cause of the Plague, Pestilential and other malign Fevers, Small Pox, and some other Diseases as well Chronick as Acute, and particularly of that dreadful one a *Phthisis* which is the peculiar Subject of these Papers.

Rheums Predispose to Infection with the Organism of Phthisis.

I have observed, that sometimes Coughs which seem to threaten an immediate Consumption, cease almost of their own Accord without that Consequence, and leave the Patient in perfect Health. ..... Now if what I have advanced may be allow'd the Reason of this is very plain, because if the body be ..... entirely free from such species of *Animalcula* or very minute Animals, that I imagine to be the Essential Cause of a Phthisis, that Disease, though the Cough is very violent or severe, will not happen: but if on the contrary, the Blood and Juices be charged with such noxious *Animalcula* ..... then a slight Cough may be succeeded by that most dangerous Distemper.

The Means by which the Organism of Phthisis enters the Body.

If the Air we breathe, the Food we eat, or Liquor we drink in common with the rest of Mankind, were full of such minute living Creatures, or their Seed, then we might reasonably suppose that all Persons Breathing, Eating, and Drinking of the same, would in like Manner more or less be liable to the same Distemper, which would in that Case become Epidemical and almost Universal, this therefore we may imagine to happen in the Case of Plagues and Pestilential Distempers, that seize upon whole Cities Towns and Countires, at a Time, but not very likely in the Case of the Disease we now treat of (i.e., Phthisis).

It seems much more probable that the minute Animals or their Seed, which we have suppos'd to be the Essential Cause of a *Phthisis* or Consumption of the lungs, are for the most part either convey'd from Parents to their Offspring Hereditarily, or communicated immediately from distemper'd Persons to sound Ones who are very conversant with them; the first way has been already mentioned, when we were speaking of the Small Pox. ..... The last way, which is properly call'd Infection, we may conceive to be the more reasonable, if we consider how quickly and easily some other Distempers are communicated from one Person to another, as the Itch, Venereal Disease etc., which are yet very far from becoming universal.

It may be therefore very likely, that by an habitual lying in the same bed with a Consumptive Patient, constantly Eating and Drinking with him, or by very frequently conversing so nearly, as to draw in part of the Breath he emits from his Lungs, a Consumption may be caught by a sound Person; for it may be reasonable to suppose that if the Blood and Juices of such distemper'd People, be charg'd with vast quantities of *Animalcula*, as I have conjectur'd, then their profuse Sweats, and their Breath also, may be likewise charg'd with them, or their *Ova* or Eggs, which by that means may possibly be convey'd into the Bodies of those who lie, or are most conversant with them.

It may here probably be objected, that if the Disease is communicated after this Manner, few that come near a Consumptive Person would escape having that Distemper; but in Answer to this I imagine that slightly conversing with Consumptive Patients, is seldom or never sufficient to catch the Disease; there being but few if any of those minute living Creatures or their Eggs communicated in slender Conversations, and which, if they are, may not perhaps, be produced into Life, or be nourished or increased, in the new Station they happen to be cast; besides, we may imagine that some Persons are of such an happy Constitution, that if any of the *Ova* of the inimicable minute Animals that cause a Consumption, happen to get into their Bodies, they may likewise be quickly forc'd out again, through some of the *Emunctories*, before they are produc'd into Life; or else be wholly destroy'd.

Metastatic Processes Explained.

I have already hinted, that most Animals, both of the Air and Water, delight to keep in distinct Species, and are found together in Swarms and Sholes; hence it may be suppos'd that the sudden Translation of some Distempers from one Part of the Body to another, may happen, by some Species of *Animalcula*, that I have conjectured to be the Prime Cause, suddenly removing themselves from the Part they first delighted, or chanc'd to fix in, and most injured, (either by some dislike through Remedies directed to that Part particularly, or some other means) to another, that before was perfectly well.

We may imagine that our Fluids, having great Numbers of the Ova or Eggs of very minute Creatures floating in them, may not possibly be injured thereby, or not to any considerable Degree, until in some of our innumerable Vessels, they meet with a proper *Nidus* or Nest, so as to produc'd into Life probably in the Shape of an exceeding small Worm, and that in this Form swimming or being circled about in our Juices, they may be able, by stimulating the fibrous Parts of the Blood, preying upon the new made Chyle, and obstructing and nestling in some of our small Vessels or slender Canals, to occasion a tickling Cough, Hectick Heat, and other Symptoms of an approaching Consumption.

They may possibly in length of time, cause larger Obstructions, so as to occasion Tubercles to arise in the Lungs, and as those Creatures, are capable of stimulating the Vessels they so obstruct, we may suppose the Tubercles, Knots or Swellings occasioned thereby, will increase in Magnitude proportionably quicker or slower, and be the sooner or later inflamed; according to which, the Consumption proves either Chronic or Acute.

The Nature of Secondary Infection in Phthisis.

Now when these Tubercles come to Suppuration, or break, and become small Ulcers, it may not be unlikely that the minute Animals which Caus'd all the Mischiefs hitherto mentioned, may now in those Ulcerations, as in proper Places, assume a different external Shape from what they before had, and by their now different parts or Weapons, stimulate more fiercely, and inlarge those Ulcerations, wounding or gnawing the Mouths of the small vessels opening into them, and at length be able, in their new shape, to get into the Mass of Blood and other Juices again, there to act a Part different from what they did before, viz.: stimulate all the nervous fibres of our small vessels to a great degree, and occasion all the Rigors and Horrors we feel, in the beginning of the Fits of Putrid Intermitting Fevers; which Rigors etc., are succeeded by a quick Motion of the Blood, and an Intense Fever, being Nature's Effort (if I may be indulged in the Expression) to throw off her enemy, which at last she does. ..... The body then remains tolerably easy, till the Blood and Juices receive a fresh supply of them, from the Ulceration or Ulcerations in the Lungs, and in such large Quantities, as to be able to produce a new Fit.

Not only had Marten a clear conception of the nature of infectious diseases, but he also foresaw many pathological problems to which the development of that theory has given rise. He takes a very fair and balanced view of the hereditary factor in pulmonary consumption, and he makes suggestions for a theory of immunity. It is also remarkable that while he includes in his group of microbic diseases such

conditions as syphilis and rheumatism, he does not commit himself on the subject of cancer, though aware of the existence of organisms in the discharges from cancerous ulcers.

Marten quotes frequently from the writings of the microscopists whose wonders were then attracting all the scientific world, and the suggestion of his theory may be traced to a remarkable passage by Frederick Slare which, having appeared in 1683, antedated the discovery of bacteria by Leeuwenhoeck which is often referred to the year 1687. In the Philosophical Transactions, Vol. XIII., 1683, p. 93, is "An Abstract of a letter from Dr. Winckler, Chief Physitian of the Prince Palatine ..... to Dr. Fred. Slare ..... containing an account of a Murren in Switzerland." In a postscript to this letter Dr. Slare wrote as follows:—

"I lately received an account of Two Ingenious Travellers who assured me the contagion had reached their quarters on the borders of Poland, having Passed quite through Germany. ..... They told me the contagion was observed to make its progress dayly spreading near two German Miles in twenty-four hours ..... that it continually without intermission made progressive voyages and suffered no neighbouring Parish to escape: so that it did not at the same time infect places at great distances. They added that cattle secured at rack and manger were equally infected with those in the Field. *It were worth the considering whether this infection is not carryed by some volatile Insect that is able to make only such short flights as may amount to such computations.* For the account of the Ancients is very little satisfactory to this Age, who derive it from a blind putrefaction, from incantations of ill men, or from conjunctions of inauspicious Planets. *I wish Mr. Leewenhoeck had been present at some of the dissections of these infected animals, I am perswaded he would have discovered some strange Insect or other in them.*" (Italics by Editor.)

Marten's book appeared in 1720, but was dated "From my House in Theobald's Row near Red Lyon Square in Holbourn, Sep. 1st, 1719," and although a second edition, or rather reprint, appeared in 1722, the book seems to have attracted very little attention from the medical profession of the day, and there are certain indications that the demand which called for a second issue may have been a popular rather than a scientific one.

It is interesting to note how Marten (exactly like Pasteur many years later) used epizootics and the phenomena presented by scabies as an illustration of the parallel nature of the infectious fevers in man.

Information as to the life and personal character of Benjamin Marten is almost wholly lacking. He was not a Member of the Royal College of Physicians, nor does he seem to have been a graduate of either of the English universities. His Latinity was not of a high order, while all, or nearly all, the works from which he quotes were either in English or French, or were available in translations into those languages. He writes, however, a witty and racy English style, and had evidently read carefully the recent scientific literature which had appeared in the vulgar tongues.

I have been unable to find any other works of Benjamin Marten, though there were several contemporary authors bearing the same name. Information concerning so suggestive an author and one of such exceptional foresight would be very welcome, and may, perhaps, be elicited by this short account of his work.[2]

[2] A fuller account of Marten's book has been given by me in the issue of "Janus" for February, 1911.

WORKING-CLASS ORGANISATIONS AND SCHOOL CLINICS.—On March 4th Mr. George Lansbury, M.P., presided at a conference held at Caxton Hall, Westminster, of delegates representing 177 trade unions, independent labour branches, and other working-class organisations to consider the method adopted by the London County Council for dealing with the medical treatment of school children. On the motion of Mr. Pearce of the Hampstead Trades Council, seconded by Miss Benton, a resolution protesting against the present system adopted by the County Council of subsidising London hospitals for the medical treatment of school children was adopted. The resolution included a demand for the establishment of special centres supported by grants from the Imperial Exchequer and adequately staffed with medical men, including dentists and nurses. On the motion of Mr. T. W. Kelly, seconded by Miss MacMillan, it was proposed that all working-class organisations should withdraw their financial support from voluntary hospitals as a protest against this use of the hospitals by the London County Council. This proposition was, however, at the suggestion of the chairman, amended so that it should apply only to hospitals which had made contracts with the London County Council. The motion was then carried.

THE QUESTION OF COMPULSORY STATE INSURANCE OF EMPLOYERS' LIABILITY UNDER THE WORKMEN'S COMPENSATION ACT, 1906.

BY ALBERT BENTHALL, F.R.C.P. EDIN.

THIS question is in the air, at present in a nebulous condition, without form, and void, but, as it will be of the greatest possible moment to the medical profession, it should be considered in all its bearings before condensation takes place, and it becomes tangible in the form of a Draft Act of Parliament.

For the proper consideration of the question the working of the present Act must be borne in mind, with its admitted faults and difficulties, so that the experience gained in the last 3½ years may be used to advantage in the formation of a scheme, certain to come sooner or later, and perhaps sooner than many expect. Compulsory insurance must take one of two forms: (1) that all employers shall be compelled to insure with a department of the State; (2) or only those who do not insure with an insurance company which has complied with the regulations of the Board of Trade, and which is therefore approved and accredited by the State.

To anyone conversant with the working of the Workmen's Compensation Acts of 1897 and 1906, and the losses which have been incurred by various insurance companies, who have in the past insured employers against liability under these Acts, there would appear to be many difficulties in the way of insurance by the State, unless the State is willing to sustain the immense loss heretofore made by insurers, and a large additional loss also. It is clear that the State could not exercise the intimate individual and personal attention to claims which has been applied by the various offices, also it could not attempt to select business or decline unprofitable risks. Here a large question arises. If every one has to insure with the State, the State will fix its own rates, and these might be absolutely prohibitory if there were no competition. On the other hand, if the present insurance offices of undoubted standing are allowed to continue their business they should be placed on all fours with the State, and the regulations applying to State insurance should be applied to them. I should like to point out some of the prominent defects of the present Act which entail unavoidable but perfectly useless loss to every one concerned—employers, those who insure them, and the workmen.

1. Notice of injury: (*a*) At present a medical certificate is not required. (*b*) Need not be sent in reasonable time. *Note.*—1. Any person claiming on a club has to provide a medical certificate, and any workman unable to work in consequence of accidental injury must require medical treatment. It would therefore be no hardship to require a short medical certificate on a form to be obtained at any post-office, to be sent with the notice of accident. 2. Notice of accident should be given at once if possible, but certainly within 14 days.

2. There is no power to insist in proper medical treatment being obtained. *Note.*—If a man is sufficiently injured to be able to claim under the Act he should be compelled to seek the advice and submit himself to the treatment of a qualified medical practitioner or attend at some hospital.

3. There is no method of determining whether a workman is fit or unfit for work, nor can the workman obtain his half pay if it is withheld except by expensive litigation, entailing heavy costs. *Note.*—Employers are therefore severely hit, and many *bonâ-fide* injured workmen suffer.

4. There is no power of reference to a medical referee except by a judge's order or consent of *both* parties. *Note.*—It is a well-known fact that if one side has a doubtful case a medical reference is objected to, as it is considered better to threaten expensive proceedings, in the hope of getting a settlement.

5. There is no power of contracting out of the Act with the consent of a registrar by previously injured, diseased, weakly, or aged persons, who are thereby shut out from employment. *Note.*—An increasing number of persons are being thrown out of employment and become a charge on the rates when they are anxious and willing to do such work as is within their power.

6. The registrars have no machinery for obtaining the advice of medical referees when required to register or refuse

registration of settlement. *Note.*—Registrars have to accept or refuse registration of settlements, without any knowledge of the real facts, and they are often hoodwinked by mendacious statements made by one side or the other.

7. There are no uniform rules as to medical assessors sitting with the county court judges either as to their employment or their procedure. *Note.*—There is no obligation for a judge to call an assessor to sit with him, or to act on his advice, as to the medical points, if he has called one. There are no rules as to procedure: some medical assessors examine the man alone, some allow medical men acting on behalf of the employer and workman to be present.

8. There is no provision of consulting-rooms and appliances for the proper examination of workmen at county courts. *Note.*—It is impossible for any medical assessor to properly examine a workman in a bare room, without even a couch in many cases, without any appliances for making any test, and without authority to administer an anæsthetic for the relaxation of muscles.

9. There is no appeal from the decisions of medical referees, which are "final and conclusive." *Note.*—Various suggestions have been made as to an appeal, but the views are so discordant, and many impracticable, that I prefer to deal with the matter later, under the essentials of State insurance.

If the foregoing and other defects of the present Act were remedied, so that the *bóna-fide* workman could be sure of his half wages being paid immediately after notifying the accident, and the employers, and those who insure them, could be protected against fraudulent and exaggerated claims and heavy costs, compulsory insurance would be unnecessary except for those who decline to insure. If compulsory State insurance should be enacted I venture to submit that the following points would be essential in the interest of the public, the profession, employers, and workmen.

1. That the State must not be allowed to fix its own rates of insurance. It should be in healthy competition with accredited insurance offices of standing, otherwise employers would be heavily hit with no redress.

2. The State or registrars must have notice of injury within a fortnight on a simple form to be obtained at any post office, clearly stating the nature of the injury and signed by the medical attendant of the workman.

3. Medical practitioners in every district should be appointed as medical examiners, and they should examine and report on every notified case of accidental injury without delay.

4. If the report of the medical examiner should not be approved and accepted by the workman, acting under the advice of his medical attendant, the matter should be at once referred to a medical referee, whose decision should be final unless appealed from within seven days. This would be on all fours with the procedure as to lead and other industrial poisoning, which are reported on by factory surgeons, and referred to a medical referee when cases are in dispute.

5. The Employers' Liability Act should be repealed, so that the questions of law would be few, the only questions being whether the workman was able to work or not, and what work, if any, he was capable of performing.

6. No settlements should be allowed to be made by the State unless registered by a registrar of a county court acting on the advice of a medical referee.

7. The decisions of medical referees should not be "final and conclusive." It should be possible to appeal from their decisions, and this is a very difficult subject, and various suggestions have been made. (*a*) That three medical referees from neighbouring circuits should form a court of appeal—that is, they should examine the workman and report either in favour of or against the decision of the medical referee. (*b*) That as many more medical referees would be required than there are at present, many of their decisions would be certain to be appealed from, and the appeal should be to a medical board of hospital surgeons, nominated by the Home Office in each district. (*c*) That consulting surgeons should be appointed by the Home Office to examine and report on decisions of medical referees referred to them by county court registrars, whose decision should be "final and conclusive." This latter would be cheaper, as only one fee would have to be paid instead of three or more.

8. Lay inspectors would have to be appointed in every district, so that the State should be in touch with injured workmen to insure their having proper medical treatment and the obtaining of work as soon as they are able to do it.

9. Stringent penal clauses should be inserted, dealing with those workmen who malinger or exaggerate.

As there are many thousands of small employers who do not insure, and who have not the means of paying compensation if a claim is made on them, some kind of compulsory insurance is necessary, but if by the State, the State must be protected. Many other points will have to be considered, especially those relating to legal questions, which do not come within my province, but the above points closely affect the medical profession, which must in the near future be more largely employed in safeguarding the interests of their patients, or of employers, than even now; while when compulsory State insurance does come in one form or another the State will have to rely upon the medical profession for its protection against loss.

THE SMALL-POX EPIDEMIC IN LONDON.

THE following is a brief account of the epidemic of small-pox in the east of London since its outbreak.

On Feb. 5th a girl named Annie L——, 12 years old, of Key-street, Mile End, was admitted into a general ward in the Mile End Infirmary, where there were some 60 other patients. She was suffering from an eruption with severe indisposition, which was thought to be chicken-pox. Her friends visited her daily. No suspicion of its being small-pox occurred until late at night on Feb. 20th, when the medical superintendent of the infirmary, being suspicious of the condition of two other patients in the ward, called in consultation Dr. A. F. Cameron of the South-Eastern Fever Hospital. These cases were diagnosed as small-pox, and attention was thus drawn to the girl Annie L——, when it was found that her disease also was small-pox. In the early morning of Feb. 21st these three patients were removed to the Joyce Green Small-pox Hospital. On the same day four other cases—an unvaccinated girl, aged 3 (since dead), a probationer nurse, a ward scrubber, and Sarah L——, aged 11, a sister of Annie L——, none of them vaccinated since infancy, were removed to hospital. Two sisters of Annie L——, viz., Leah, aged 15, and Rebecca, aged 8, were then found suffering from small-pox. Rebecca had been to school on Feb. 20th and 21st, so that the school became infected from that date. On Feb. 22nd Felix K——, aged 1 month, unvaccinated (since dead), and Theresa C——, aged 21, a probationer, unvaccinated since infancy, were taken to hospital.

On Feb. 23rd the following 11 cases were removed from the same ward of the Mile End Infirmary: a woman, aged 23, a nurse, vaccinated in infancy only; a woman, aged 35, vaccinated in infancy only; a woman, aged 43, vaccinated in infancy only (since dead); a girl, aged 4, vaccination doubtful; a woman, aged 54, vaccinated in infancy only; a woman, aged 49, vaccinated in infancy only; a woman, aged 22, vaccinated in infancy only; a woman, aged 45, vaccinated in infancy only; a girl, aged 4, vaccination doubtful; a woman, aged 51, vaccinated in infancy only; a woman, aged 46, vaccinated in infancy only; also another member of the L—— family, a man, aged 20, vaccinated in infancy only. There were also two cases, one each from Poplar and Pimlico. On Feb. 24th three cases were removed from the infirmary, viz.: a boy, aged 1¾, not vaccinated; a boy, aged 4, not vaccinated (since dead); and a nurse, aged 24, not vaccinated. On Feb. 25th six cases were removed, five being from the infirmary, viz.: a girl, aged 2¼, not vaccinated (since dead); a woman, aged 65, vaccinated in infancy (since dead); a man, aged 42, vaccinated in infancy; a girl, aged 16, vaccinated in infancy; a girl, aged 15, not vaccinated; and one case from outside the infirmary, viz.: a woman, aged 30, vaccinated in infancy only; also a case from Hackney. On Feb. 26th two cases were removed to the hospital, one from outside and one from the infirmary. The latter, however, was found not to be suffering from small-pox. The other case, a woman, aged 67 years, had previously been a patient in the infirmary and was discharged on Feb. 13th. She was vaccinated in infancy. There was one case from Bethnal Green. On Feb. 27th two cases were removed to the

hospital from the infirmary: a woman, aged 84, not vaccinated (since dead); and a nurse, aged 21, vaccinated in infancy only; also two from Hackney and one from Deptford. On Feb. 28th two cases were removed from the infirmary to hospital—viz., a girl, aged 12 years, not vaccinated; and a woman, aged 40 years, vaccinated in infancy (since dead); also one case from Bethnal Green and one from Leyton. On March 1st there were no fresh cases, but on March 2nd four new ones occurred—viz., one from Paddington, one from Shoreditch, and two from Whitechapel respectively, and another death took place. On March 3rd two fresh cases were received at the small-pox hospital—one from Whitechapel and a doubtful case from Shoreditch—and another death took place. On March 5th one death was reported, and two suspects under observation were discharged as being free from the disease. On March 4th, 5th, and 6th there were no new cases.

At the time at which we write there are 42 cases under treatment, and the boroughs from which cases have been received are Stepney, Poplar, Shoreditch, Bethnal Green, Deptford, Hackney (all in the East End of London), Paddington and Pimlico (in the West End), and Camberwell in the South.

On the notification of the first diagnosis of small-pox, the medical officer of health of Stepney, Mr. D. L. Thomas, traced the early history of the first case. It appeared that the girl Annie L—— was taken ill on or about Jan. 28th. No rash had then appeared, and she attended the receiving-room of the London Hospital. She visited there on Feb. 4th and 5th, and on these occasions she doubtless had a rash, for her case was diagnosed as one of chicken-pox. On Feb. 5th she entered the Mile End Infirmary, and remained in the ward until Feb. 20th, when her case was diagnosed to be one of small-pox. In the meantime patients had been discharged from the ward and many visitors had been. Her family was at once put under observation, with the result that her two sisters and a brother, immediately they developed the disease, were at once sent to the small-pox hospital. Mr. Thomas obtained the addresses of all the friends of each individual member of the L—— family, and investigated their condition of health. In the course of this investigation he found that on Dec. 1st, 1910, a pregnant woman in the neighbourhood of Bell-lane had a rash which the medical man in attendance had diagnosed as chicken-pox. He had called in another practitioner and both had agreed on this diagnosis. This patient miscarried. On Dec. 6th another medical man attended her until Dec. 12th. He observed the rash, but did not think that it resembled small-pox. This patient had several young children, but all of them were vaccinated and had no rash. The mother was ill nearly up to Christmas. A man lodging in the house was taken ill about Dec. 20th, a rash appearing a few days afterwards. He remained away from work until Jan. 16th. For three weeks he was hardly out of his room, and most of the time was in bed. A sister of his, in the same room, about Jan. 17th developed a similar rash, but was less severely ill. Both these patients were attended by a medical man, who regarded the disease as chicken-pox. About Jan. 21st this girl visited the L——'s house in Key-street, when the first notified case, that of Annie L——, occurred. As already noted, Annie L—— became indisposed about Jan. 28th and developed a rash by Feb. 4th or 5th, some 12 days after the visit of the girl from Bell-lane. It is therefore reasonably certain that the disease from which the pregnant woman then suffered was small-pox, and that it in all probability was the cause of her miscarriage. Her recently vaccinated children apparently did not take the disease, but it was communicated to her lodgers, of whom one introduced it into the house in Key-street, whence it ultimately found its way into the Mile End Infirmary. There the true nature of the disease was finally recognised; not, however, until some 60 patients in the wards, several nurses, and many visitors had been exposed to infection, not to mention the possible previous contacts in the receiving-room of the London Hospital.

As to the question of vaccination, Mr. Thomas states that seven children under 8 years of age were attacked, of whom two were said to have been vaccinated. These two had the disease in a very mild form, and hardly seemed deranged in health. Of the other five, who had not been vaccinated, four died. Of 14 cases between 8 and 30 years of age, 3 had never been vaccinated and 11 vaccinated in infancy; none revaccinated. Of 13 cases between 30 and 60 years of age, all had been vaccinated in infancy; none revaccinated. Two have since died. Two of the three patients over 60 years of age have died, making a total of 8 deaths up to March 8th. All had been vaccinated in infancy, but none revaccinated.

It will be seen that owing to the large number of "contacts" the outbreak got a good start. The gradually increasing severity of the cases seems to indicate a mild character of the infection at first, with an increasing infectivity as it passed repeatedly through different hosts. To limit the spread as much as possible, by getting early information regarding its outbreak among contacts, the addresses of all patients discharged from the Mile End Infirmary since Feb. 5th were taken and all have been visited daily, as well as the houses of all outdoor officials of the infirmary. The families of all the 60 patients in the infected ward were treated as contacts, and they also have been visited daily. The addresses of all visitors to the infected wards also have been ascertained and their homes visited daily. The names of the absentees from the three schools attended by the L—— children are furnished every morning by the teachers and their homes are at once visited. All in the infected wards, both patients and nurses, have been revaccinated. Finally, the families of all those who develop the disease after contact as visitors at the infirmary, &c., are taken to the Council's shelters and kept under observation. It is hoped that the outbreak has been successfully brought under control; but owing to the very widespread exposure to infection that occurred prior to the recognition of the disease great vigilance is still necessary. Great credit is due, however, to the intelligent energy and efficiency of the sanitary authorities in tracing the origin so far back and placing all avenues of its further extension at once under constant observation.

THE TRANSVAAL MINING COMMISSION.

IN 1907 a Commission was appointed by the late Transvaal Government to inquire into mining conditions generally in the Transvaal, and to make recommendations, *inter alia*, for the protection of the health and for the safety of persons working on the mines. The Commission was unable to submit its final report until March last, but this was not accessible to the public until recently. While it is reassuring to find that the Commission generally considers that the health conditions on the mines have vastly improved in recent years, yet there is evidently great need for further improvement, and the long list of recommendations prepared by the commission call generally for immediate attention.

Mortality amongst White Miners.

The death-rates from all causes for the three years 1905, 1906, and 1907 per 1000 white mining employees are returned as approximately 20·425, 16·953, and 18·869 respectively. These at first sight would appear satisfactorily low when compared with the figures for other countries, but unfortunately the general low death-rates conceal a very high mortality amongst a limited class (13 per cent.)—namely, rock-drillers. The general low death-rates are explained by the fact that the figures include surface-workers, who constitute from 54 to 58 per cent. of all employees and are an exceptionally healthy class; also because at least one-third of the disabled rand miners leave the country and die elsewhere; and, lastly, because during the war there was a practical cessation of mining operations and 50 per cent. of the present rock-drillers have never worked machine drills except on the Rand and since the war, and in their case sufficient time has not elapsed for full manifestation of the effects of occupational disease. These death-rates, however, when corrected for age-constitution, are greatly in excess (approximately 60 per cent.) of those amongst white non-mining males of 20 and over. The death-rate from phthisis, including miners' phthisis, at ages of 20 and over, which in 1905, 1906, and 1907 was 5·7, 5·09, and 6·13 per 1000 respectively, was more than six times greater amongst white mining males than amongst white non-mining males, whilst this proportion by no means represents the condition in the case of rock-drillers, from which class most of the white miners, who die locally from phthisis, are drawn. The death-rate from respiratory diseases other than phthisis amongst white mining males at ages of 20 and over

was 70 per cent. greater than amongst similar white non-mining males. Excluding all respiratory diseases, there appears to be an appreciably lower mortality "from all other diseases" amongst white mining males of 20 and over than amongst white non-mining males of the same age period, which is explained by the Commissioners as likely to be in part due to the fact that the white miners' high death-rate from respiratory diseases tends in a limited degree to decrease the numbers liable to other complaints, and to the further fact that when a person with chronic respiratory disease succumbs to an acute intercurrent non-respiratory ailment the older standing disease will usually appear in statistical returns as the cause of death.

Mortality amongst Native Labourers on the Mines.

In regard to natives the Commission records its opinion that in the case of those from the temperate regions of British South Africa, excepting Basutoland, there is a consistently low mortality quite comparable to that of white underground workers; those from the subtropical and malarial areas of Portuguese East Africa, south of latitude 22°, as well as from the Northern Transvaal, Rhodesia, and Basutoland, show much higher, but still comparatively moderate death-rates, while those from the purely tropical districts, Northern Rhodesia, British Central Africa, Quilimane, and Mozambique, show very high death-rates. In view of the importance of this subject little evidence appears to have been received, and as will be seen later the conclusions and statistics of the Commission cannot be accepted altogether without reservation. Two medical witnesses gave evidence to show that the death-rate amongst native mine workers, which was alarmingly high in 1902–1903, differs from that amongst white miners in being due much more to climatic than to occupational causes; it is pointed out, however, by the Commission that since 1903 very great improvements have been effected, not only in respect to methods and seasons of recruiting, but also in medical inspection, supervision, housing, diet, working conditions, and hospital accommodation, with the result that there has been a marked and steady decline in the native mortality. This decline in the native death-rate from disease, as well as the apparent influence of the climatic factor, is well illustrated in the following table taken from the report of the Commission:—

Average Death-rate per 1000.

—	—	1903-04	1904-05	1905-06	1906-07
1	"Tropical natives."	—	130·1	99·5	70·5
2	All natives.	54·9	44·1	40·3	30·8
3	"Non-tropical natives" (south of latitude 22°).	—	35·3	33·4	27·7
4	Quilimane natives.	—	163·9	71·6	96·5
5	Mozambique natives.	—	128·2	65·8	67·5
6	British Central Africa natives.	115·5	118·3	166·3	62·9
7	Rhodesia natives.	—	118·6	79·8	46·2
8	East coast natives (south of latitude 22°).	—	39·9	35·8	33·7
9	Transvaal natives.	24·7	38·6	36·0	22·8
10	Cape Colony.	15·3	17·2	19·8	14·2
11	Natal and Zululand.	19·0	12·8	14·9	11·6

The Commission remarks that compared with European standards the death-rate is still high, but little is known of the normal death-rates of many of the native tribes in their own homes, and, again, the migratory tendency of native labour has to be borne in mind. The report says:—

> Each batch remains a comparatively short time; this, of course, minimises the effect of unhealthy underground working conditions, but, on the other hand, it means that almost as soon as such a batch becomes inured to the climate of the Rand, it is replaced by raw boys on whom falls by far the heaviest incidence of sickness and mortality. ..... Fortunately the natives from tropical areas constitute only 7·3 per cent. of the total number, as against 12·15 per cent. from Cape Colony, 3·5 per cent. from Natal and Zululand, 9·10 per cent. from the Transvaal, and upwards of 60 per cent. from the east coast, south of latitude 22°. Moreover, investigation has shown that the high susceptibility of these tropical and sub-tropical natives is not a permanent condition, and that after a few months' acclimatisation and familiarity with mining work there is a marked decline in sickness and mortality. This process of acclimatisation is comparatively short in the case of east coast boys, but, as might be expected, it is less complete, slower, and accompanied by so great a wastage amongst boys from British Central Africa and North-eastern Rhodesia that recruiting from these areas is no longer allowed by the Imperial Government. From the Portuguese tropical districts of Quilimane and Mozambique recruits are drawn under the following very salutary precautions—viz., (1) selection with special care under medical supervision; (2) arrival on the Rand during the summer months only; and (3) no underground employment within one month of arrival. In practice these natives remain under medical observation in the compounds of the Witwatersrand Labour Association until, in the opinion of the medical officer, they are fit to be drafted to the mines. The outstanding feature of these figures and facts is the advisability of recruiting mine natives as far as possible from the temperate regions of British South Africa and of minimising the number drawn from tropical districts.

Whilst racial and climatic conditions undoubtedly appear to have exercised great influence on the mortality rates amongst the different classes of native mine labourers, it is a pity that these rates were not separated by the Commission to show the difference according to race in the case of underground and surface workers respectively, as it is well known that many native tribes in Natal, the Transvaal, and Cape Colony are generally averse to working underground, and it would seem likely that a relatively large proportion of workers from these areas may have been employed mainly on the surface. Moreover, it is notorious that in native areas in these territories "boys" are constantly returning ill, particularly with phthisis, from the Rand to die in their homes, whereas it would seem probable that the sick from other and more inaccessible areas would not be able to obtain the same facilities to travel owing to lack of railway communication, and would therefore be likely to die or to recover locally on the Rand. There is nothing to show whether the Commission considered these factors, but even accepting the death-rates as given in the report they are generally, notwithstanding the pronouncement of the Commission, appalling, for it must be remembered that the "boys" recruited are selected natives in the prime of life, and passed as medically sound before actually employed, and that signing on for only short periods they are consequently not so likely to die from miners' phthisis as Europeans employed continuously underground. About 80 per cent. of the total deaths amongst native mine workers are, according to the Commission, in the order of their importance, due to pneumonia, phthisis, tuberculosis, cerebro-spinal meningitis, enteric fever, and dysentery, whilst operating as indirect and predisposing causes are malaria, notably scurvy to a less extent, and perhaps ankylostomiasis to a limited extent, especially amongst East Coast natives. The pneumonia death-rate is about 40 per cent. of that from all causes, whilst tuberculosis of the lungs comes next with about 18 per cent. The death-rate from the latter disease would doubtless be higher but for the fact already alluded to, that in certain areas a large number of infected "boys" return to die in their own homes. At the present time the Rand is undoubtedly responsible for the increasing prevalence of tuberculosis in the kraals of many native tribes, a matter to which the Commission does not refer, though it is admitted in the report that the disease in native mine labourers is almost invariably found to have been contracted on the Rand.

Recommendations of the Commission.

Into the causes of the unsatisfactory death-rates, both amongst European and native workers, the Commission enters at some length, and it submits a long list of recommendations for the betterment of existing conditions. With these recommendations we can cordially agree, particularly that workers infected with tuberculosis should be excluded from further underground employment; that the provision of a constant supply of clean water for the purpose of preventing the inhalation of dust in connexion with rock-drilling, blasting, and lashing, should be rigorously insisted upon whenever and wherever developmental work is carried on, where the natural strata are not wet, and in every dry and dusty stope, and that with equal rigour miners should be compelled to make use of the water thus provided; that the floor and sides of the working place to a distance of 10 feet from the face, where rock-drilling is being carried on, be kept sufficiently damped to prevent dust being raised by the escape of exhaust air, and that the damping of dry and dusty rock be carried out, not only before lashing commences, but be repeated as often as necessary while lashing proceeds; that proper shelters for the use of native underground workers should be erected near the shaft heads; that in future the erection of back-to-back dwellings should be prohibited; that a specified standard quality of air should be insisted upon throughout mine workings; and that lastly, a

Government medical inspector of mines should be appointed.

Insufficient Air-space in Native Compounds.

The Commission apparently agrees with the provisions of the Coloured Labourers' Health Regulations Ordinance of 1905, and appears to be fairly satisfied with the accommodation provided for natives. It is on this point that the views of the Commission cannot be wholly endorsed. If we remember rightly, this was a matter which brought Dr. G. A. Turner, when medical officer of health for the Transvaal, into conflict with the mining interests. The air-space required under the Ordinance consists of 200 cubic feet only for each labourer occupying the premises when the full complement for the accommodation of which the premises are provided is present. Surely it would not be unreasonable to expect further improvement in the health of labourers if a more liberal scale of air-space was provided. The Commission apparently contemplates that the medical inspector of mines should be an officer of the Mines Department. If, however, a proper department is organised, it would seem preferable for the medical inspector to be attached to the latter department as a subordinate of the chief medical officer. Moreover, the supervision of the health of mine workers generally should be entrusted to the latter officer.

Jan. 30th.

THE HEALTH OF THE ARMY IN 1909.

III.[1]

South Africa.

THE force in South Africa was reduced from an average strength of 14,075 in 1908 to 11,784 in 1909. The health statistics show a marked improvement as compared with the previous year, and one that is still more satisfactory when compared with the quinquennial average; both the admission and constantly sick ratios were lower than for the troops serving at home. The admissions to hospital were 331·2 compared with 458·9 in 1904–08, the constantly sick were 19·29 compared with 30·17, and the deaths were 3·73 compared with 5·66 per 1000. It is noted that the numbers treated in barracks were larger than in the previous year, owing to a relatively large number of minor injuries and inflammation of connective tissue cases among the mounted troops, and of convalescent cases of malaria in men arrived from India. The chief military stations are Pretoria, Bloemfontein, Potchefstroom, and Wynberg (Cape Colony). Wynberg shows the highest ratio of admissions to hospital, due chiefly (as heretofore) to venereal disease. Enteric fever caused 91 admissions to hospital, being in a ratio of 7·7 per 1000, a satisfactory reduction on the quinquennial ratio of 18; of these cases 49 occurred at Pretoria. This is an improvement on the previous year, when there were 65 admissions from approximately the same number of troops. As has been the case in the last few years, the disease has been of a very mild character, and there was only one death. The sanitary officer states that during October and November a number of mild cases were admitted from Roberts' Heights, "characterised by a sudden onset, early appearance of a profuse and atypical rash, intense headache, injected conjunctivæ, and early defervescence, occasionally by crisis. A number of these cases failed to give an agglutination reaction with B. typhosus or B. paratyphosus A and B. Blood cultures proved sterile even when 5 c.c. of blood were taken from a vein." The report says that in former years this type of disease would, in all probability, have been returned as simple continued fever or influenza. The diagnosis of enteric fever would appear to be doubtful. At Middelburg, Cape Colony, there were 15 admissions between February and May; eight of these were men whose duties led them into special contact with the town where enteric fever was rampant. When introduced into cantonments the disease appeared to spread by contact infection, either in the barrack rooms or latrines. Flies were unusually prevalent and "a veritable plague. As Middelburg is served by a dry earth system of conservancy, the influence of the fly in transmitting infection where enteric fever is rife cannot be overlooked. There is no evidence to incriminate water- or milk-supplies." In another part of the report it is stated that "wherever the pail system is in use great attention is paid to the cleanliness of the latrines. Disinfection is systematically carried out, which among other results has a marked effect in keeping down the number of flies." It would appear that Middleburg, for some reason or other, did not experience this benefit of latrine disinfection, the reason not being given. The occurrence of a number of very mild or doubtful cases naturally tends to a decrease in anxiety in regard to their importance, but an exacerbation of the type must always be considered possible. Malaria caused 133 admissions, of which 102 were recurrent attacks of disease contracted elsewhere; of the primary attacks 27 occurred at Pretoria. There was an unusually heavy rainfall early in the year, and, we are told, "water remained in pools and old quarries in the vicinity of the barracks well into the winter months. Mosquitoes increased in numbers, and anopheles became distributed over a wide area, including the whole of Pretoria, artillery barracks, and the cantonments, Roberts' Heights. Several cases of malaria occurred among the civil population in the town, and in March the municipal authorities took stringent measures to lessen the prevalence of mosquitoes. Early in April mosquito brigades were formed, who drained the pools, if reasonably feasible, and paraffined the water in all other instances. The result was an almost immediate cessation of the disease." Another good instance of effective prophylaxis was afforded on the arrival of troops from India. In anticipation of malarial incidence arrangements were ready in advance for their systematic treatment, frequent medical inspections were made, and quinine administered. Pyrexia of uncertain origin caused only 13 admissions, compared with 118 in 1908; the average number constantly sick was only 1·30; that is, one quarter of the sickness (or, in the phraseology of the writer of this report, "four times less than") in 1908. The decrease is principally due to careful bacteriological investigation carried out in all atypical cases of fever. Of the pneumonia cases nearly half (17) occurred at Bloemfontein, where rheumatic fever was also more prevalent than elsewhere; it is stated that no reason can be assigned for this. Sore-throat and tonsillitis have been much less frequent than usual during the past year. For venereal diseases, taken as a whole, there is a very slight decrease in the admission ratio, compared with the quinquennial period, though the figures are rather higher than those for 1908. Syphilis shows some improvement. Wynberg, Cape Colony, still has the highest incidence, owing to its proximity to Cape Town, though there is a reduction on the previous year's figures.

Sanitation continues to receive considerable attention, and we quite believe that "in barracks, on the march, in camp, and at manœuvres, every reasonable effort was made to attain the best results." Inoculation against enteric fever was extensively carried out, especially in regiments recently arrived from India. No extensive sanitary works were put forward during the year, it being felt that the political changes involved in the closer union that now exists between the South African provinces would have some effect on the distribution and strength of the garrisons. During the year the troops were removed from Middelburg, Cape Colony, a few details only now remaining. The water-supplies are generally noted as satisfactory, except at Pretoria and Potchefstroom, where they are boiled. At Roberts' Heights and the Artillery Barracks, Pretoria, B. coli is occasionally present even in one cubic centimetre of the water. "As noted in previous reports the health statistics show no relationship between the incidence of enteric fever and the pail system of conservancy. Where the water system is in most extensive use—Roberts' Heights and Artillery Barracks, Pretoria—the prevalence of enteric fever is much greater than in any other station in the command." This statement, however, as to absence of connexion between methods of excretal disposal and enteric prevalence is not consistent with the evidence of the report itself. As just mentioned, at Roberts' Heights and the Artillery Barracks the water is bacteriologically very impure (it is true that it is "boiled"); it is at least possible that the high enteric incidence in these barracks is due to the use of infected water for drinking, in which case it would have no connexion with the water-carriage method of sewage disposal. Moreover, on a previous page had been mentioned the coexistence of an enteric fever outbreak at Middelburg with

[1] No. I. and No. II. were published in THE LANCET of Feb. 25th (p. 534) and March 4th (p. 607), 1911, respectively.

employment of the dry-earth system and great prevalence of flies. The use of khaki drill, which was substituted for serge in 1908, is stated to have, so far, proved suitable and satisfactory.

India.

The average strength of the European force serving in India was 71,556, an increase of some 5000 troops over the garrison of the year preceding. The health statistics show a marked improvement on those for the previous year, and on the quinquennial averages. The admissions were 716·9, the constantly sick 40·26, and the deaths 6·37 per 1000; the corresponding figures for 1904–08 having been 839·1, 50·68, and 10·07. The returns for 1909 are the best that have ever been recorded, and the improvement has been noticeable under all heads. The invaliding ratio has come down to 9·06 per 1000, that for the preceding quinquennium having been 25·31. The more important causes that have conduced to these results are considered to have been (1) the steady improvement in the sanitary condition of cantonments; (2) the greater interest taken by commanding officers and others in the sanitary condition of latrines and barracks; (3) an increased appreciation on the part of the men of the value of a rational mode of life, and an intelligent perception of the elementary principles of hygiene; (4) the provision of steam disinfectors in various large garrisons, and a greater attention to the details of prompt and adequate disinfection of bedding and clothing; and (5) an enhanced appreciation of the benefits of anti-enteric inoculation, together with increased efforts by medical officers to detect mild or ambulant cases of enteric fever that formerly escaped notice.

The enteric fever statistics are most satisfactory: the admissions were 8·9, compared with 15·8 in the preceding quinquennium; and the deaths, 1·58, compared with 3·10; the number constantly sick was 2·06 as against 3·11; in all respects therefore, frequency of infection, fatality, and severity of attack, the improvement is most notable. The stations that suffered most were Meerut (26·1 admissions per 1000), Lahore (26), Kirkee (26), Lucknow (23·2), Sialkot (20·7), Multan (20·3), Jullundur and Dinapore (20). At Lahore, Kirkee, Lucknow, and Dinapore there were considerable increases in the number of cases over the preceding year, though all of these stations have a bad reputation for enteric fever; at Meerut and Sialkot and Multan, there was some decrease in prevalence. At some stations that had been severely attacked in 1908—e.g., Peshawar, Rawal Pindi, Jhansi, Jubbulpore, and Secunderabad—there was very slight incidence in 1909. Some stations, formerly notorious for enteric fever, had no cases at all; such were Kasauli and Cawnpore. Some notes are furnished as to causation: at Lahore 23 cases occurred, the earlier ones traceable to drinking polluted water on the march from Ranikhet, the later ones due to contact infection. Similar infection on the march accounted for an outbreak in the Royal Field Artillery at Lucknow. At Peshawar infected latrines were thought to be the cause; the disease died out soon after the introduction of the wet system with the use of cresol solution. Milk is not thought to have been a cause of any importance. The scattered distribution of most of the cases militates against the carrier theory as regards the troops themselves; but it is suggested that carrier infection may take place in the bazaars, and it is pointed out that "although only 22 per cent. of all enteric cases are women, the proportion of females amongst chronic carriers is at least 82 per cent." Three cases of infection are recorded in nursing orderlies, one of whom had refused to be inoculated; and one in the person of a medical officer attending on enteric patients. Six cases of isolation of paratyphoid bacillus A are recorded. At Cliffden, near Murree, an outbreak of 11 cases among women and 12 among children occurred during June and July. Excellent work is being done at the two convalescent depôts for enteric fever patients. At Naini Tal, where the depôt was established in 1908, during the year 360 men were under observation; the urine and fæces were examined twelve times in each case, and in seven instances carriers of typhoid bacilli were detected—i.e., just under 2 per cent., which conforms to European experience. The Wellington depôt for Southern India was opened in June, 1909; 64 men have been fully examined and discharged. Ten men were discharged time-expired before a complete examination could be made; 49 men remained under examination at the end of the year. Three carriers were detected. These depôts are of great benefit to the patients themselves, and are doing immense good by the protection they afford to the army as a whole.

Reviewing the question of enteric prevention in India, it appears to us that the present position is very encouraging. Infection by polluted water is now comparatively rare; the instances noted of such infection on the march to Lahore and to Lucknow are regrettable, but will perhaps lead to increased care in the future; such occurrences are now very exceptional, and should be considered, we think, as in every case requiring strict investigation. Infection by latrines is now also quite exceptional, and presumably the dry-earth system has by this time entirely disappeared. Infection of nursing orderlies is also a thing of the past, now that inoculation is so widely practised; we suppose an orderly who refuses inoculation will no longer be employed to attend on an enteric fever case. The carrier problem is being dealt with effectually in barracks; the bazaar source of infection by female carriers certainly does present difficulties, but happily the venereal admission rate has fallen from 126·9 in the quinquennium 1904–08 to 67·9 in 1909; this reduction, together with the encouraging growth of temperance in alcohol throughout India, leads us to hope that carrier infection from this source will also diminish. Lastly, of the total force of 71,556, no less than 43,556 men have been inoculated; the figures, so far, indicate that the attack rate in the inoculated is about one-third, and the case mortality one-half, of the rates in uninoculated men.

Malaria admissions were at the rate of 202·8 per 1000, being more numerous than in the preceding quinquennium (171·9), but less than in 1908 (244·6). Preventive measures have been carried out zealously, both for extirpation of mosquitoes and by prophylactic administration of quinine; this latter was carried out in practically all stations during the malarial season. Opinions seem to differ as to the results.

Smaller Stations.

One or two points only will be alluded to in this last section of the report. A diminution of sickness in comparison with the preceding quinquennium occurred in each of the smaller stations; in the Straits Settlements the admission ratio was practically the same, and, compared with 1908, showed an increase. Malaria accounted for 394 admissions per 1000, compared with a quinquennial average of 299; it is attributed to excessive growth of jungle in proximity to barracks and presence of infected natives. The former is a removeable cause; no explanation is given why such an obviously insanitary condition was allowed to exist. In Jamaica malaria was prevalent among the Royal Garrison Artillery at Fort Nugent; they were mounting heavy guns in November, when the rainfall was excessive and the troops were mostly under canvas in the bush, where anopheles mosquitoes abound, and a malignant tertian fever prevails. "The work," we learn, "was considered of such importance to the safety of the island that it could not be discontinued." We were not aware that Jamaica was in any immediate peril, except from earthquake, and the mounting of heavy artillery would hardly have been an effective safeguard against this danger. In West Africa there has been a considerable decrease in malarial fevers as a result of the labour devoted to anti-malarial operations, and an improvement in health generally. Tower Hill and Mount Aureol are now practically free from fever. There were no deaths in the command; the quinquennial average mortality (1904–08) had been 14·91 per 1000. In contrast to the Jamaica experience it may be noted that in Mauritius there were only 99 admissions per 1000 for malaria, compared with a quinquennial average of 283; extensive drainage works had been carried out on land bordering on barracks at Curepipe, night marches were discontinued, and no camps were formed during mobilisation, the men being housed in barracks; as a result, no admissions for fever followed on the manœuvres.

A study of this admirable report shows with what diligence and skill the health of the British army is being cared for under every variety of condition, the facts and figures are very clearly arranged, and the report in every way is one of great interest and value.

THE death is announced of Dr. Friedrich Ernst, formerly director of the Medical Clinic of Zürich University, at the age of 82.

MEDICINE IN THE ENCYCLOPÆDIA BRITANNICA.[1]

III.—*Surgery.*

THE volumes A to J treat of many subjects of no little importance connected with surgery. Under Surgery we may include Anæsthetics, for anæsthesia is ancillary to surgery, and an interesting though brief account is given of the history of the subject. The chief anæsthetics are described, while the modernity of the section is shown by the fact that in the account of spinal analgesia the attitude taken by the writer represents very fairly the present position—namely, that the method has undoubtedly its uses and will take its due place in surgery, but what place that is has not yet been settled. All the objections that have been urged against it are described.

In the article on Aneurysm we are told that the old method of Antyllus with modern aseptic conditions is now sometimes employed. It is somewhat doubtful whether Antyllus excised the aneurysm; apparently he only tied the artery above and below. In the modern method the aneurysm is excised after ligature of the artery on each side of the aneurysm. Other articles are on Disease of the Bladder and Prostate, and on Diseases and Injuries of Bone. Here it was hardly necessary to refer to Barker's method of wiring a fractured patella, for it is now out of date, and we believe it is never used now even by Barker himself. Burns and Scalds are well described, and what may be called the home treatment is carefully given. We can hardly agree that skin-grafting probably does not hasten healing. The article on Cancer describes the various theories which have been put forward to account for morbid growths, and preserves a judicious impartiality between them. Naturally, it says that operation is at present the only treatment. Other articles of a surgical nature are on Carbuncle, Hæmophilia, Hæmorrhage, Hæmorrhoids, Hernia, Hydrocele, and Hydrocephalus, and they need no special mention. They are sound summaries of their subjects.

Perhaps the most important, so far as the lay public is concerned, of the surgical articles is that on Appendicitis; for, on the one hand, there are many who are unnecessarily frightened with the fear of suffering from this affection, and, on the other hand, there are even more who fail to recognise the vast importance of the early treatment of appendicitis. The writer in the Encyclopædia considers that there can be no doubt that the disease is more common than it used to be, though he adds that the explanation of the increased frequency is not yet forthcoming. We are told that in some families there is a strange predisposition towards it. This is often stated in the text-books, but we should like to have some definite evidence in support of it. Of course, cases do run in families sometimes, but the theory of probabilities will account for this. After the etiology the article goes on to describe the anatomy of the appendix, and a description of the chief symptoms of the disease follows. Then a very typical and graphic account is given of an attack of acute appendicitis affecting a school-boy, and the course which it probably followed is also described; and this will give a clearer idea to the mind of the non-medical reader than could have been produced in any other way. The previous mild attacks of "indigestion" passing away under the influence of an aperient, the sudden onset of the disease after the boy gets wet through or sits on cold ground when heated at play, the localisation of the pain in the right side of the abdomen, the flushed face, the rise of temperature, the quickened pulse,—all these are well described. The writer proceeds to discuss the question of treatment. He presents the arguments in favour of waiting for the interval and those in favour of immediate operation, and comes to the conclusion that the safest method is immediate operation in all cases, for, says he, "It is highly probable that if every available hospital surgeon were asked if he had ever had cause to regret having advised early operation in the case of appendicitis the answer would be 'No'; on the other hand, every surgeon would be able to record cases in which delay had been probably disastrous, which an early resort to operation would in all probability have prevented." This is a highly practical way of answering a difficult question. Catarrhal or relapsing appendicitis, we are told, may be due to the presence of "bolted," unchewed, or undigested food in the cæcum, and that these mild recurrent attacks may sometimes be got rid of altogether by attention to the teeth and care in eating. In the chronic forms of the disease the need for operation has been well put: "To carry about a diseased appendix is to run the constant risk of being laid up at a time most inconvenient, as when travelling or when staying in some place where skilled assistance is far distant or absolutely unobtainable." The difficulty in many cases of recognising the exact severity of an attack is well described: "The most serious cases are those in which the aspect, the pulse, and the temperature of the patient fail to give warning of a very advanced state of the disease. These are, indeed, the serious cases, and at present it must be confessed that we have no certain method of recognising them. These are the cases which offer the most powerful argument in favour of immediate operation." A good description is given of what may happen when an attack of acute appendicitis is allowed to take its course. The possibilities of perforation are described, the chance of limitation by adhesions is referred to, and the reader is made to understand how the pus may either burst into the general peritoneal cavity with a fatal issue, or may slowly make its way into one of the hollow viscera, or to the surface of the body. Many authorities will agree with the writer in the Encyclopædia that when an appendicitic abscess has been opened, and the diseased appendix presents itself, it should be removed, while if it does not present itself it is safer for the surgeon to abstain from making a determined search for it at the time. With this view, on the other hand, many authorities do not agree, our own opinion coincides with the writer's on the whole, that for the moment at least drainage is sufficient. The possible errors in diagnosis are mentioned, and it is pointed out that diagnosis is sometimes impossible without recourse to operation, and generally the other morbid condition which has been mistaken for it may be relieved instead. Perhaps the most important paragraph in the article is that which deals with the treatment that should be employed in the case of appendicitis if, for one reason or another, operation has to be delayed, for these instructions may very reasonably be followed by the friends of the patient if they are at a distance from medical aid and they wish to employ to the best advantage the time that must elapse before a doctor can see the patient. The instructions are simple: "The patient should be put to bed with his knees resting over a pillow and a large fomentation under oil-silk should be laid over the lower part of the abdomen. No food should be given beyond an occasional sip of hot water. Purgatives should not be administered, as this would be to set in movement an inflamed piece of bowel. If the case be not acute a large enema of soap-and-water with turpentine may be given or possibly a dose of castor-oil by the mouth. As a rule, however, it is unwise to set the bowels in vigorous action until the diseased appendix has been removed. No opium should be given." Here we see in this single paragraph all the essentials of what may be called the non-professional treatment of appendicitis. The rest in bed, the raising of the legs, the warmth locally, the absence of all food with the exception of a sip of hot water, the risk of purgatives, the utility of an enema, and, lastly, the danger of opiates, but we cannot help thinking that a little more stress might be laid on the danger in these cases of giving any sedative at all. As the words stand the friends might feel justified in giving chlorodyne, for instance, or some other patent preparation containing morphia or some similar substance, and the value of the directions might have been increased if the explanation had been given that to administer an opiate to such a patient before he had been seen and examined by a medical man would be to obscure greatly the signs of the case, and so to interfere possibly with the diagnosis. We have quoted fairly fully from this article, and we think it is more likely to be studied by the general reader of the Encyclopædia than any other surgical article in all the volumes, so we may express the opinion that the writer, who is, we believe, Mr. Edmund Owen, has very happily struck the mean between the treatise for professional readers and the ordinary article on health subjects intended for lay readers.

[1] Articles I. and II. were published in THE LANCET of Feb. 25th (p. 530), and March 4th (p. 609), 1911, respectively.

It is by no means an easy thing to present professional facts to non-medical readers; it is very easy to cause unnecessary fear and disquiet amongst those who have no real knowledge of medical subjects, and, on the other hand, to fail to give what can really be called an accurate picture of a disease and its treatment.

We think the publishers of the Encyclopædia are to be congratulated on the high standard of the purely surgical articles. The article on Gynæcology occupies some seven columns, and, so far as is possible within that space, gives such a presentation of the subject as may reasonably be put before lay readers. The accounts are necessarily extremely brief. Sufficient of the history of this branch of medicine is given to show the general progress that it has undergone, and the various diseases of the female generative organs are shortly described. Our present recognition of the fact that many general diseases are caused by dental affections has greatly increased our idea of the importance of due care of the teeth, and we are glad to see that the article on Dentistry is adequate and very suitable for its position in this work. The section on the filling of teeth describes the various methods that have been employed, and reference is made to porcelain restorations. We are told that if successfully made porcelain fillings are scarcely noticeable, but that their durability remains to be tested. The general principles of dentures are described and the modern methods are also mentioned. We agree with the writer that moveable bridge work, though more difficult to construct, is preferable to fixed work as it may be more easily cleansed.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

Opening of Meeting.

THE provincial meeting of this association was held on Feb. 23rd at the Cardiff City Mental Hospital, by the courtesy of Dr. Edwin Goodall and the committee of visitors, under the presidency of Dr. John Macpherson. There was a good attendance of members and visitors. The serious business of the sitting was preceded by a luncheon in the large hall of the hospital, at the invitation of the Lord Mayor (Alderman Charles H. Bird), and among those present at the repast were the President (in the chair), the Lord Mayor, Alderman Morgan Thomas, J.P., Dr. G. H. Savage, Dr. Charles A. Mercier, Mr. E. Tenison Collins, Mr. H. F. Hayes Newington (treasurer), Dr. C. Hubert Bond (general secretary), Dr. R. Percy Smith, Dr. Alfred Miller (registrar), and Dr. T. Drapes (President-elect).

After the toast of "The King," the LORD MAYOR proposed that of "The Medico-Psychological Association of Great Britain and Ireland," coupled with the name of the President. He pointed out that the membership of the association was 700, and that its organ, the *Journal of Mental Science*, constituted a reflex of the most recent researches bearing on the specialty. An important part of the activities of the association consisted in awarding special prizes to assistant medical officers, granting certificates to mental nurses—of both sexes—and in other ways raising the status of all who were connected with the care and treatment of the insane. He concluded by extending a cordial welcome to the association in the name of the citizens of Cardiff.—The PRESIDENT, replying on behalf of the association, expressed gratitude for the city's kind hospitality, and remarked that, the function of the members being the care and treatment of the insane, it was necessary continually to educate themselves, and it was in pursuance of that aim that the opportunity of the visit to the Cardiff Mental Hospital was welcomed.

The PRESIDENT proposed the toast of "The Lord Mayor and Corporation," and expressed a high opinion of the new Mental Hospital, which was well worthy of emulation.—The LORD MAYOR, in replying, said that in constructing the hospital the aim had been to have an institution which should be worthy of the city and of the cause, one in which patients could be properly housed and cared for, and yield a fair proportion of cures. That fair degree of success he could claim had been achieved. A further aim had been to make the hospital, by means of an efficient staff and adequate laboratory accommodation, a centre of investigation, and already distinct scientific advances had been made. He hoped one result of the visit of the association would be to encourage the workers at the hospital and to show the ratepayers of Cardiff the wisdom of the course which had been pursued.

Alderman MORGAN THOMAS (chairman of the Cardiff Mental Hospital Committee) proposed the toast of "The Visitors," coupled with the names of Dr. George H. Savage, Dr. Charles A. Mercier, and Mr. E. Tenison Collins. He pointed with great satisfaction to the fact that the cures at the hospital had been 46·7 per cent. of the admissions. There was also much wisdom in using the word "hospital," for, as Dr. Goodall said when the matter was discussed, the aim was not merely to detain mental cases, but to cure them.—Dr. SAVAGE, Dr. MERCIER, and Mr. TENISON COLLINS each replied.

Papers Read.

At the scientific meeting in the afternoon, the first paper was a report of an exhaustive research by Dr. H. A. SCHÖLBERG and Dr. EDWIN GOODALL, both of the Mental Hospital. It was entitled "On the Wassermann Reaction in 172 Cases of Mental Disorder (Cardiff Mental Hospital) and 55 Other Cases (Cardiff Infirmary, &c.), with Historical Survey." The authors dealt with the work of Bordet and Gengou on complement-fixation and its application to the diagnosis of syphilis by Wassermann, and then reviewed the published statements on the subject since 1906. The paper set out in detail the results in general paralysis and other kinds of mental disorder, including dementia præcox, epilepsy, idiocy or imbecility with epilepsy, idiocy and imbecility, and various other kinds of mental disorders. The results were also given in the case of controls from syphilitic non-mental cases, for purposes of comparison. In addition, they set out the results obtained by the dilution and concentration of the human amboceptor. An important point dealt with in the communication concerned the absolute and relative frequency of the reaction in serum and cerebro-spinal fluid, and its variability in individual cases. They found that the reaction became negative during a remission of the symptoms in general paralysis of the insane in several cases, but considered that there was need for a more detailed investigation on that point. Other points brought out were the necessity for repeated examination, the diagnostic value of a positive reaction in the cerebro-spinal fluid, the value of the Noure-Apelt test, and the desirability of ascertaining the relative frequency of the reaction in cases of general paralysis with known syphilitic history as compared with all cases of that disease.—Dr. PARKER, in discussing the paper, said that in 10 cases in which "606" had been used there was no alteration in the reaction after treatment.—Dr. SAVAGE regarded the contribution as an epoch-marking one. The fact that one case in which the reaction was negative proved to be one of injury and not syphilis reminded him of a claim which had been made for compensation for injury, and in which the defence was that it was a disability due to the specific disease and not to injury. If it could be definitely established that the positive reaction to the Wassermann test meant the disease in question, such cases could soon be disposed of.—Dr. PERCY SMITH heartily congratulated the authors on their work. He had not the opportunity of laboratory work, and as his work was mainly clinical, he was glad to hear Dr. Schölberg say that there were cases in which reliance must be placed chiefly on the clinical aspect. He understood that there were cases of general paralysis in which, even late in the disease, there was a negative reaction, and also some in which in the early stage the Wassermann test was negative, although the physical signs might point to the disease, but in which a positive reaction only developed as the disease progressed. There could be no doubt that the test was a most valuable aid to diagnosis. He related a case in which there appeared to be all the typical symptoms of general paralysis, but in whom the Wassermann test was negative. There was no history of specific disease, but there had been a severe injury to the head. It was probably traumatic general paralysis. One case, which seemed to be general paralysis and in which there was specific disease, was given "606," and following that he had increased excitement and exaltation. But his physical signs still remained in abeyance. At the Berlin Congress on the Care of the Insane a paper was read showing that the Wassermann reaction was positive in

many cases of malaria, presumably those in which there was no syphilis.—Mr. E. FAULKS asked whether the authors had compared their results with the cell-counts in the cerebro-spinal fluid, and whether they would describe the details of the precipitation test.—Dr. SCHÖLBERG replied that cytological counts were not done.—Dr. GOODALL replied that the observers who made the test and the cytological count found that the results did not necessarily coincide.

Dr. R. V. STANFORD read a paper on the Production of Indigo in the Human Organism.—Dr. SAVAGE remarked that it was going rather far to say that there was no parallel to be traced between the presence of indican and the mental symptoms in a stuporose case.—Dr. GOODALL said he had been watching the work, and was of opinion that the whole matter was in a state of flux; there was no exact knowledge on the subject of the production of indigo in the urine. Indigo occurred in the urine in other states than constipation and obstruction in the bowel, in such state as marasmus, cachexia from carcinoma, phthisis, &c. The paper showed the need of the subject being taken up by skilled workers, qualified chemists, because those medical men who had made statements on the matter up to the present were not competent chemists nor physiologists. That applied especially to certain Italian workers. They said one could associate the presence of indigo in the urine with clinical conditions. But this research did not warrant that statement. A method of quantitative estimation did not exist, and Dr. Stanford was endeavouring to produce one.

Mr. TENISON COLLINS, gynæcologist to Cardiff Infirmary, read a paper entitled "Notes on Gynæcological Conditions coincident with Mental Disturbances," in which he showed the close connexion subsisting between the nervous and generative systems. The disorders of the latter in females were often accompanied by headache, epilepsy, insomnia, hallucinations, the cure of which was followed by disappearance of the disturbances. If abnormalities of the pelvic organs in the insane were treated, there was generally improvement in the state of health, and if the abnormalities were present before the onset of the insanity the mind would also improve in some of the cases. But operations upon the reproductive organs were inadvisable for the amelioration of the insanity alone. The selection of the proper cases for this must be done by the medical staff.

The concluding paper was read by Mr. R. L. MACKENZIE-WALLIS on Metabolism in the Insane. His investigation showed that there was but little difference in the metabolism of the insane in comparison with that of normal people; but there were differences in the products derived from cellular activity, especially in some forms of insanity. In this it was suggested that the ductless glands played a large part, as the effects of disease of those glands on the metabolism were well known.

Account of Dinner.

At the dinner in the evening at the Royal Hotel, Cardiff, Dr. MACPHERSON proposed the toast of "The City and Port of Cardiff," and spoke highly of the vigour and wealth of the city and its progressive and enlightened policy. Nowadays people were not so much asking how rich the rich were, but what they were doing with their riches. If there were slums in Cardiff their parks and open spaces formed an excellent set-off to them. The Mental Hospital was unique in its efficiency and in the work it was doing.—The LORD MAYOR, in his reply, said the thanks of all Cardiffians were due to Dr. Macpherson for his kind words; they were proud of their city and of its trade, which was a very large one. They felt great pride in having had a visit from such an association.

Dr. SAVAGE proposed the toast of "The Mental Hospital Committee," coupled with the names of Dr. Goodall and Alderman Morgan Thomas, and spoke of the high quality of the work being done at the hospital in the attempts to advance the knowledge of mental disease.—Mr. Alderman MORGAN THOMAS, in responding, spoke of the excellent work being done at the Mental Hospital by Dr. Goodall and his staff, and said he believed that general hospitals ought to be supported out of the rates. The old idea in regard to diseases of the mind was that when once a person went into an asylum he or she was doomed, as far as this life was concerned. But better ideas now prevailed, and the old heathenish idea of mere detention had long been discarded. He saw no reason why diseases of the mind, provided they were not chronic, should not be as curable as those of the body.—Dr. GOODALL also responded, and expressed his belief in the German system of cliniques, whereby a patient was investigated from the standpoint of all the specialties—that of the mind included—and treated as his case was found to require. The staff and the board of management would feel in the visit of the association an incentive to continue their work with even increased enthusiasm, so as to add their quota to the sum of scientific knowledge.

Dr. MERCIER proposed the toast of "The Visitors," coupled with the name of Dr. Maclean; and that gentleman replied.

The toast of "The Medico-Psychological Association" was submitted by Mr. W. SHEEN, and he specially mentioned the welcome of local members of the medical profession.

The PRESIDENT of the Association, Dr. MACPHERSON, replied in a graceful speech, in which he bestowed high praise on the work being done at the Mental Hospital, and voiced the gratitude of the visitors for the reception they had enjoyed.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8121 births and 5040 deaths were registered during the week ending March 4th. The annual rate of mortality in these towns, which had been equal to 17·6, 17·2, and 16·2 per 1000 in the three preceding weeks, further declined to 15·3 in the week under notice. During the first nine weeks of the current quarter the death-rate in these 77 towns averaged 16·1 per 1000, and the mean recorded rate in London during the same period was 16·0. The annual death-rates during last week ranged from 5·6 in Handsworth, 6·2 in Hornsey and West Hartlepool, and 6 3 in Warrington, to 21·5 in Huddersfield, 23·9 in Sheffield, and 24·4 in Middlesbrough. The 5040 deaths from all causes in the 77 towns showed a further decline of 305 from the numbers returned in recent weeks, and included 663 which were referred to the principal epidemic diseases, against numbers increasing from 477 to 601 in the four preceding weeks; of these 663 deaths, 397 resulted from measles, 108 from whooping-cough, 64 from diphtheria, 53 (of infants under two years of age) from diarrhœa, 25 from scarlet fever, 15 from enteric fever, and 1 from small-pox. The fatal cases of measles, which had steadily increased from 160 to 359 in the first eight weeks of the current quarter, further rose last week to 397, they caused the highest annual death-rates of 3·2 in St. Helens, 3·8 in Coventry, 4·2 in Leyton, and 9·1 in Sheffield. The deaths from whooping-cough, which had been 132 and 91 in the two preceding weeks, rose again last week to 108; the highest death-rates from this disease last week were 1·6 in Norwich, 1·9 in Coventry, and in Stockton-on-Tees, and 2·4 in Middlesbrough. The 64 fatal cases of diphtheria also showed an increase upon recent weekly numbers, and included 25 in London and its suburban districts, 6 in Bradford, 4 both in Leeds and in Sheffield, and 3 in Cardiff. The 53 deaths of infants attributed to diarrhœa corresponded with the number in the previous week, and showed proportional excess in Smethwick and in Middlesbrough. The 25 fatal cases of scarlet fever were fewer by 8 than the number in the previous week; 6 occurred in London and its suburban districts, and 2 each in Handsworth, Leeds, Newcastle-on-Tyne, and Rhondda. The deaths referred to enteric fever, which had been 19, 16, and 14 in the three preceding weeks, were 15 last week, of which 2 each were recorded in Bristol, Birmingham, and Bradford. The fatal case of small-pox occurred in London. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospital, which had 1276 and 1242 in the two preceding weeks, had further declined to 1197 on Saturday last; 129 new cases of this disease were admitted to these hospitals during last week, against 147, 166, and 138 in the three preceding weeks. These metropolitan hospitals also contained on Saturday last 918 cases of diphtheria, 682 of measles, 223 of whooping-cough, and 37 of enteric fever. The Metropolitan Asylums Hospitals contained 45 cases of small-pox on Saturday last, of which 16 new cases had been admitted during the week. The 1394 deaths from all causes in London last week, showing a further decline of 146 from the numbers in recent weeks, included 318 which

were referred to diseases of the respiratory system, against 421 and 395 in the two preceding weeks. In the 77 towns 153 deaths resulted from different forms of violence, against 163 and 173 in the two preceding weeks, and 381 inquest cases were registered. The causes of 47, or 0·9 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Leicester, Stoke-on-Trent, Salford, and in 45 other smaller towns; the 47 uncertified causes of death in the 77 towns last week included 7 in Liverpool, 4 in Gateshead, and 3 each in Rochdale, Blackburn, Preston, Sheffield, and Hull.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 898 births and 621 deaths were registered during the week ending March 4th. The annual rate of mortality in these towns, which had been equal to 19·8, 19·0, and 17·4 per 1000 in the three preceding weeks, further declined to 16·9 in the week under notice. During the first nine weeks of the current quarter the death-rate in these towns averaged 17·0 per 1000, and exceeded by 0·9 the mean rate during the same period in the 77 English towns. The annual death-rates last week in the eight Scotch towns ranged from 8·8 in Paisley and 14·0 in Aberdeen to 19·7 in Greenock and 20·1 in Dundee. The 621 deaths from all causes in the eight towns last week showed a further decrease of 20 from the numbers in recent weeks, and included 57 which were referred to the principal epidemic diseases, against 68 and 76 in the two previous weeks; these 57 deaths were equal to an annual rate of 1·6 per 1000, the highest rates from these diseases being 1·9 in Glasgow and 2·1 in Dundee. Of these 57 deaths from the principal epidemic diseases, 32 resulted from whooping-cough, 12 from diarrhœa, 5 from diphtheria, 4 from scarlet fever, 2 from measles, and 2 from enteric fever, but not one from small-pox. The fatal cases of whooping-cough, which had been 45 and 39 in the two previous weeks, further declined to 32 last week; they included 16 in Glasgow, 5 in Dundee, 3 in Edinburgh and in Paisley, and 2 in Aberdeen. Of the 12 deaths attributed to diarrhœa, including 10 of infants under two years of age, 9 were recorded in Glasgow. Four of the 5 deaths from diphtheria, and 3 of the 4 from scarlet fever also occurred in Glasgow. Both the fatal cases of measles were returned in Edinburgh; and of the 2 deaths referred to enteric fever 1 each occurred in Glasgow and in Greenock. The deaths referred to diseases of the respiratory system in the eight towns, which had been 181 and 139 in the two preceding weeks, further declined to 118 last week, exceeding by 5 the number returned in the corresponding week of last year. The deaths resulting from different forms of violence, which had been 22 and 21 in the two preceding weeks, were but 15 last week. Of the 621 deaths from all causes in the eight towns, 190, or 31 per cent., occurred in public institutions. The causes of 21, or 3·4 per cent., of the deaths registered during the week were not certified or not stated; in the 77 English towns last week the proportion of uncertified causes of death did not exceed 0·9 per cent.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,163,596 persons, 656 births and 455 deaths were registered during the week ending March 4th. The annual rate of mortality in these towns, which had been 24·1, 22·7, and 20·9 per 1000 in the three preceding weeks, further declined to 20·4, in the week under notice. During the first nine weeks of the current quarter the annual death-rate in these 22 towns averaged 20·8 per 1000, while during the same period the death-rate did not exceed 16·1 in the 77 English towns and in the eight Scotch towns 17·0 per 1000. The annual death-rate last week was equal to 21·6 in Dublin (against 14·8 in London), 17·4 in Belfast, 17·8 in Cork, 28·5 in Londonderry, 30·1 in Limerick, and 33·1 in Waterford; in the 16 smallest of the Irish town districts the mean annual death-rate last week averaged 19·3 per 1000. The 455 deaths from all causes in the 22 town districts last week showed a further decrease of 10 from the numbers returned in recent weeks, and included 41 which were referred to the principal epidemic diseases, against 29 and 25 in the two preceding weeks; these 41 deaths were equal to an annual rate of 1·7 per 1000, the highest rates from these diseases being 6·6 in Queenstown, 7·1 in Londonderry, and 9·6 in Sligo. Of these 41 deaths from the principal epidemic diseases, 22 resulted from whooping-cough, 8 from measles, 5 from diarrhœa, 4 from enteric fever, and 2 from scarlet fever, but not one either from diphtheria or from small-pox. The fatal cases of whooping-cough, which had been 11 and 10 in the two previous weeks, rose to 22 last week, of which 11 occurred in Dublin, 6 in Londonderry, and 2 in Sligo. Seven of the 8 fatal cases of measles, all the 4 deaths from enteric fever, the 2 from scarlet fever, and 3 of the 5 deaths attributed to diarrhœa occurred in Dublin. The deaths in the 22 towns referred to diseases of the respiratory system, which had been 141, 137, and 110 in the three preceding weeks, further declined last week to 108. Of the 455 deaths from all causes registered during the week under notice, 141, or 31 per cent., were recorded in public institutions. The causes of 23, or 5·1 per cent., of the deaths in the 22 towns last week were not certified either by a registered medical practitioner or by a coroner after inquest; the proportion of uncertified causes of death last week did not exceed 0·9 per cent. in the 77 English towns, and 3·4 per cent. in the eight principal Scotch towns.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff-Surgeon: W. N. L. Cherry to Portland Hospital. Surgeons: H. M. Braithwaite to the *Vivid*, additional; C. D. Bell to the *Research*, on recommissioning; and A. Fairplay to the *Vivid*, additional, for disposal on the *Invincible* reducing.

ROYAL ARMY MEDICAL CORPS.

Colonel G. W. Robinson has arrived home on leave from India. Lieutenant-Colonel M. L. Hearn has taken over the duties of Medical Inspector of Recruits in the Irish Command. Lieutenant-Colonel B. M. Skinner, M.V.O., has been appointed to the command of the Station Hospital at Rawal Pindi, in succession to Lieutenant-Colonel M. O'D. Braddell, transferred to Ahmednagar. Lieutenant-Colonel A. E. Morris has taken over charge of the Military Hospital at Cork. Lieutenant-Colonel H. D. Rowan, at present serving at Aldershot, has been selected to succeed Lieutenant-Colonel W. W. Pike, D.S.O., as Officer in charge of the Military Hospital at Tidworth Park. Lieutenant-Colonel R. G. Hanley, Dublin, has been placed under orders to embark for duty in South Africa. Lieutenant-Colonel W. A. Morris, commanding the Station Hospital at Cawnpore, has been granted six months' general leave in India with effect from April 17th. Major G. T. Rawnsley has been selected for appointment as Staff Officer to the Administrative Medical Officer of the East Lancashire Division at Manchester. Major R. F. E. Austin has been appointed a Specialist in Laryngology to the Third (Lahore) Division. Major G. St. C. Thom has been granted general leave for five months. Major C. H. Hale, from Stensall, has arrived in India for a tour of service. Major A. E. Smithson has been transferred from Wynburg to Pietermaritzburg. Major E. C. Anderson, D.S.O., from Kuldanna, has taken up duty at Rawal Pindi. Major G. F. E. Stammers has, on arrival in India, been appointed Sanitary Officer to the Fourth (Quetta) Division. Major E. B. Steel has been granted six months' general leave in India with effect from March 24th. Captain J. du P. Langrishe has been transferred from Poona to the Military Hospital at Kirkee. Captain F. H. M. Chapman, from Darjeeling, has taken up duty at the Station Hospital, Calcutta. Captain H. M. Morton, from Potchefstroom, has been posted for duty at Pretoria. Captain A. Dawson has been granted general leave for six months in India. Captain S. M. Adye-Curran has taken up duty as Specialist in the Prevention of Disease at Sialkot. Captain A. B. Smallman, on expiration of his tour of service in India, has been appointed to the Eastern Command and posted to Colchester. Captains W. C. Croly, J. T. Johnson, F. W. Lambelle, and J. E. H. Gatt have arrived in India. Captain M. H. Babington has arrived home on leave from Malta. Captain William G. Aviss resigns his commission (dated March 8th, 1911).

Lieutenant A. M. Pollard, on arrival in India, has been posted to the Second (Rawal Pindi) Division. Lieutenant V. P. Hutchinson has left the London District for duty in the Southern Command. Lieutenant W. R. O'Farrell has been transferred from Cairo to Khartoum for duty. Lieutenant A. D. Stirling, from Edinburgh, has joined at Piershill.

INDIAN MEDICAL SERVICE.

His Excellency the Viceroy and Governor-General of India has selected Colonel G. W. P. Dennys, principal medical officer of the Derajat and Bannu Brigades, for the appointment of Inspector-General of Civil Hospitals in the Central Provinces, in succession to Colonel J. A. Cunningham, deceased. Lieutenant-Colonel H. H. B. Robinson has been appointed Residency Surgeon and Chief Medical Officer of Rajputana by the Foreign Department of the Government of India. Lieutenant-Colonel H. B. Melville, civil surgeon of Simla East, has been granted leave for one month and 15 days. Lieutenant-Colonel R. H. Castor, on return from leave, has been appointed to the Civil Medical Charge of the Shwebo District in succession to Lieutenant-Colonel F. J. Dewes, proceeding on leave. Major A. Leventon has been appointed Civil Surgeon of Lakhimpur during the absence on deputation of Lieutenant-Colonel E. R W. C. Carroll. Major H. J. Walton, civil surgeon of Bulandshahr, has been placed on Special Duty in connexion with the United Provinces Exhibition at Allahabad. Major G. Lamb, Bengal, has received an extension of his leave of absence from India for two months on medical certificate. Major J. Bowle Evans has been appointed Medical Officer of Health at Peshawar. Major R. G. Turner, civil surgeon at Saharanpur, has taken over duty as Civil Surgeon at Gonda. The Secretary of State for India has approved the grant of four months' study leave to Major F. A. L. Hammond. Captain C. Dykes has been appointed Civil Surgeon at Jaunpur, on return from leave. Captain E. J. C. McDonald has been posted to Jhelum, in succession to Captain S. B. Mehta, transferred. Captain L. Hirsch has taken over duty as Surgeon at the General Hospital, Madras. The services of Captain F. C. Rogers have been placed permanently at the disposal of the Government of Madras. Captain A. E. Grisewood has been appointed District Plague Medical Officer at Hoshiarpur, in succession to Captain H. Watts, proceeding on leave. Captain S. R. Godkin has taken over duty as Specialist in Advanced Operative Surgery to the Sixth (Poona) Division of the Southern Army. Captain R. McCarrison has been confirmed in his appointment of Agency Surgeon (Second Class) by the Foreign Department of the Government of India. Lieutenant M. D. A. Kureishi has been transferred from the Lahore Division to Rawal Pindi and appointed to the officiating medical charge of the 32nd Sikh Pioneers and the 28th Punjabis.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Laurence Melville Routh to be Lieutenant (on probation) (dated Feb. 6th, 1911).

TERRITORIAL FORCE.

Royal Army Medical Corps.

South Wales Mounted Brigade Field Ambulance, Royal Army Medical Corps: Major John R. I. Raywood to be Lieutenant-Colonel (dated Dec. 8th, 1910).

Welsh Border Mounted Brigade Field Ambulance, Royal Army Medical Corps: Lieutenant George Jubb resigns his commission (dated March 4th, 1911).

1st Lowland Field Ambulance, Royal Army Medical Corps: William Ferguson Mackenzie to be Lieutenant (dated Feb. 18th, 1911).

2nd Lowland Field Ambulance, Royal Army Medical Corps: Dugald Henry MacPhail to be Lieutenant (dated Jan. 4th, 1911).

Attached to Units other than Medical Units.—Major George Williamson resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated March 8th, 1911). Lieutenant Alfred H. Godwin resigns his commission (dated March 8th, 1911).

For attachment to Units other than Medical Units.—Norman Mello Fergusson to be Lieutenant (dated Jan. 15th, 1911).

CLEAN DRINKING CUPS ON BOARD SHIPS.

We have formerly (THE LANCET, vol. ii., 1909, p. 1761) noted the attention which is directed in the German and American navies to mouth disinfection and to the prevention of the spread of disease on board ships by drinking cups which are used in common. The *Archives de Médecine et Pharmacie Navales* for February (an old friend which has this year taken to itself a new name) tells us that this use of a common drinking cup by the men is in the French navy thought to spread diphtheria, tubercle, cerebro-spinal meningitis, influenza, and other infectious diseases, as well as syphilis. To avoid these risks Dr. Bonain (Médecin Principal de la Marine) has devised a mechanism which offers a clean, sterilised drinking cup to every man. The drinking cups are conical and fit into one another very closely. They are held ready in one of two cylinders which are arranged in pairs on the walls or water-tank near the taps. From one cylinder, which is locked, cups can be withdrawn by a pull; they cannot be returned here, but each man, after he has filled his cup and had his drink, returns the cup to the other cylinder, where it is held till the man in charge comes round, unlocks that cylinder, removes, washes, and sterilises the used cups by boiling. He then puts them back in the first cylinder again and locks it up. We welcome this device, which will do good if the men will use it, and use it they will if they are taught thoroughly to understand its importance.

DEATH OF ADMIRAL SIR ASSHETON CURZON-HOWE.

By the sudden death of Admiral Sir Assheton Gore Curzon-Howe, G.C.V.O., K.C.B., C.M.G., Commander-in-Chief at Portsmouth, many naval medical officers have lost a friend they can with difficulty expect to replace. He manifested towards his subordinates an unusual politeness and consideration which made him beloved. From many medical officers we have heard of him, and have learned the impression that he conveyed to them at his official entertainments that he was himself glad to meet them, of his personal support to them in their work, and of the trouble that he and Lady Curzon-Howe took, when he was Commander-in-Chief at Malta, to see that the wives and families of medical officers whose ships were away cruising should not be forgotten. He is deeply mourned in the navy.

OFFICERS TRAINING CORPS OF LONDON.

We have received the report of the Military Education Committee to the Senate of the University for the year 1910, which gives details of the strength and efficiency of the Officers Training Corps Contingent. Since its formation in January, 1909, the objects of this corps have been to provide students at schools and universities with a standardised measure of elementary military training with a view to their eventually applying for commissions in the Special Reserve of Officers or the Territorial Force. The full advantages of the training do not accrue until cadets have taken Certificate B, for which at least two years' service in the corps is required. Already 11 cadets have proceeded to commissions in the Army, five in the Special Reserve and six in the Territorial Force. The general administration of the contingent has been entrusted by the Senate of the University of London to a Military Education Committee, which hopes that in future a much larger number of cadets will proceed to commissions. A fourth section has been added to the medical unit owing to the large number of medical cadets at the Middlesex Hospital. The officers of the medical unit comprise Major W. P. Herringham, Major H. H. Tooth, Captain A. M. H. Gray, Captain R. Davies-Colley, Captain A. E. Johnson, Lieutenant J. C. Briscoe, Lieutenant T. B. Layton, Lieutenant G. C. Mathison, and Lieutenant W. V. Corbett.

A NEW HOSPITAL AT PUTNEY.—Sir William Lancaster, the chairman of the new Putney Hospital committee, points out in a recent issue of the *Times* that the late Mr. Chester bequeathed a sum of money which it is estimated will eventually amount to about £80,000 to provide the income for a general hospital to be built at Putney within 20 years of his death. Mr. Chester died about 10 years ago. The money required for building the hospital has been subscribed almost entirely locally, and the site has been given by a Putney resident. Sir William Lancaster hopes that the hospital will be ready for the reception of patients by the end of the summer. There will be 20 beds and a ward for children.

Correspondence.

"Audi alteram partem."

CHARLES BELL AND THE MOTOR AND SENSORY FUNCTIONS OF SPINAL NERVES.

To the Editor of THE LANCET.

SIR,—In regard to the somewhat ancient dispute whether Bell or Magendie discovered the motor and sensory functions of the anterior and posterior roots of the spinal nerves, it may be of interest to recall the courteous and generous manner in which Magendie dealt with Bell's claim to priority. In his second article, entitled "Expériences sur les Fonctions des Racines des Nerfs qui naissent de la Moelle épinière," Journal de Physiologie Expérimentale et Pathologique, 4e Numéro, Octobre, 1822 (the first article appeared in the same journal in August, 1822), he says:—

Avant de terminer cet article, je dois donner quelques éclaircissements sur la nouveauté des résultats que j'ai annoncés.

Quand j'ai écrit la note contenue dans le numéro précédent, je croyais être le premier qui eût songé à couper les racines des nerfs spinaux; mais je fus bientôt détrompé par un petit écrit de M. Schaw (Shaw) que ce jeune et laborieux médecin eut la complaisance de m'envoyer dès qu'il eut reçu le numéro de mon journal. Il est dit dans cet écrit que M. Ch. Bell avait fait cette section il y a treize ans, et qu'il avait reconnu que la section des racines postérieures n'empêchait pas les mouvements de continuer. M. Schaw ajoute que M. Ch. Bell avait consigné ce résultat dans une petite brochure imprimée seulement pour ses amis, mais non pour la publication. J'ai aussitôt demandé à M. Schaw qu'il voulût bien m'envoyer, s'il était possible, la brochure de M. Ch. Bell, afin que je lui rendisse toute la justice qui lui serait due. Peu de jours après je l'ai reçue de M. Schaw.

Cette brochure a pour titre:

"Idea of a New Anatomy of the Brain, submitted for the Observation of his Friends, by Ch. Bell, F.R.S.E."

Magendie goes on to say:—

Elle est très-curieuse en ce qu'on y remarque le germe des récentes découvertes de l'auteur sur le système nerveux.

He then quotes in full the passage ending:—

On laying bare the roots of the spinal nerves, I found that I could cut across the fasciculus of nerves, which took its origin from the posterior portion of the spinal marrow without convulsing the muscles of the back; but on touching the anterior fasciculus with the point of a knife the muscles of the back were immediately convulsed.

His comment on this is:—

On voit par cette citation d'un ouvrage que je ne pouvais connaître, puisqu'il n'a point été publié, que M. Bell, conduit par ses ingénieuses idées sur le système nerveux, a été bien près de découvrir les fonctions des racines spinales; toutefois le fait que les antérieures sont destinées au mouvement, tandis que les postérieures appartiennent plus particulièrement au sentiment, paraît lui avoir échappé: c'est donc à avoir établi ce fait d'une manière positive que je dois borner mes prétentions.

It is clear from this quotation that Magendie admitted that Bell had anticipated him in the crucial method of dividing the spinal nerve-roots, but justly claimed that he, not Bell, established the fact that the function of the anterior roots is motor, and that of the posterior roots, sensory.

With all desire to give credit to Bell's masterly investigation of the functions of the cranial nerves, it must be admitted that Magendie rightly said that he was only "very near discovering the functions of the spinal roots."

I am, Sir, yours faithfully,

LEONARD GUTHRIE.

Upper Berkeley-street, W., March 3rd, 1911.

THE MEDICAL BRANCH OF THE NAVY LEAGUE.

To the Editor of THE LANCET.

SIR,—May I ask for the hospitality of your journal again to draw the attention of the profession to the Medical Branch of the Navy League.

The object of the League is to enlist the interest of medical men throughout the country and to ask their help by their example and influence in keeping the country alive to the necessity of a strong navy. Without the absolute command of the sea our freedom and our national interests are in peril. Still less can we regard the imperial and colonial portions of the British Empire as secure. Twelve years ago we were able to transmit more than 100,000 troops and all the transport for an extensive campaign 6000 miles to the base of our operations without the mobilisation of a single extra warship, and this in face of the scarcely veiled hostility of two, if not three, first-rate Powers. Such at that time was our naval prestige that the millions necessary for such mobilisation were spared. Would it be so to-day?

Each medical man has much influence in his own locality, and can do much by himself joining and inducing his friends to join in the League, which is a strictly non-political body and has for its object the advocacy of a strong navy to safeguard that security which forms an essential background to all advance in commerce, science, and the social conditions of the people. I would point out that to be a member of the League a five shillings' annual subscription is all that is necessary; it is the influence and advocacy that is wanted much more than money.

I am, Sir, yours faithfully,

R. DOUGLAS POWELL,

March 5th, 1911. President of the Branch.

P.S.—All who desire to respond to this invitation to join should send their names to the secretary, Medical Branch of the Navy League, 54, Welbeck-street, W.

THE TREATMENT OF MALIGNANT STRICTURE OF THE ŒSOPHAGUS, WITH ESPECIAL REFERENCE TO INTUBATION AND TO RADIUM.

To the Editor of THE LANCET.

SIR,—On Feb. 13th, Dr. W. Hill read a paper at the Medical Society on the above subject, and in the discussion which followed I ventured to give some of my own experiences which the author of the paper criticised in your issue of March 4th. May I briefly reply to these and answer his last criticism first of all?

It must have been quite obvious to all present that Mr. Bellamy Gardner's anæsthetic tube could only be used with the bronchoscope, and that I was thinking of this and unintentionally wandering from the subject (œsophagoscopy) under discussion. I am, however, much obliged to Dr. Hill for pointing out this mental slip, if only because it affords another opportunity of bringing to notice Mr. Gardner's excellent little device for administering chloroform during bronchoscopy in such a way that the surgeon's view through the tube is not obstructed. I am quite sure with Dr. Hill that, in spite of all the advances made in the administration of anæsthetics, rectal and otherwise, neither "Mr. Bellamy Gardner nor any other anæsthetist in his senses would dream of administering a general anæsthetic *through the œsophagoscope*, not even in those cases where there is a communication between the gullet and the air passages." The anxious author of the paper may rest well assured that I do not propose casting any burden on the gullet beyond those it already has to bear.

Dr. Hill strongly dissents from my view that chloroform is the best anæsthetic when general narcosis is considered desirable in direct œsophagoscopy. I believe, Sir, that the whole object of such discussions as he introduced is to elicit the opinions, based upon experience, of those who may have worked at the subject-matter of the debate. That being so, I have only to say that if a patient be carefully prepared (including, if it be thought desirable, the previous injection of morphia and atropine), and the services of an expert anæsthetist can be obtained, my experience has led *me* to prefer chloroform, and so far the record of a considerable experience has not been sullied by the "occasional disaster" which Dr. Hill warns us may "be not unlikely" if that drug be alone used. On the other hand, I am quite willing to believe that Dr. Hill's anæsthetists can get equally good results and satisfy his requirements when ether alone or chloroform and ether are used—obviously this has been *his* experience and is shared by some others.

I am sure Dr. Hill will agree with me that the best anæsthetic is that which gives to the individual worker the best results, and the choice will largely depend on those subtle and varying factors which go to the making of individual experience. I am, Sir, yours faithfully,

Harley-street, W., March 6th, 1911. HERBERT TILLEY.

THE SPHYGMOMANOMETER AND THE SPHYGMOGRAPH IN RELATION TO THE MEASUREMENT OF ARTERIAL BLOOD PRESSURES.

To the Editor of THE LANCET.

SIR,—Dr. C. O. Hawthorne has, I think, done good service to sphygmometry in publishing his address in your columns on "The Sphygmomanometer and the Sphygmograph in Relation to the Measurement of Arterial Blood Pressures."[1] I quite agree with him that the "time" element in the cycle of arterial pressure is lacking in the sphygmometer employed *à la* Riva-Rocci; and in fact any one-point observation of that cycle, whether indicated by the criterion of maximum oscillation of the mercurial column, or that of reappearance of the pulse after its obliteration, must be less or more misleading. The result of all my observations on the measurement of arterial pressure points to the conclusion that the pressure cycle should be read at no less than two points. But my recent studies on the auditory method of determining the arterial pressure[2] show that by its aid the entire cycle can be measured; therefore we must regard the adoption of this method as an important step in the evolution of the sphygmometer.

I am, Sir, yours faithfully,

Farnham, Feb. 25th, 1911. GEORGE OLIVER.

THE LANTERN TEST FOR COLOUR BLINDNESS.

To the Editor of THE LANCET.

SIR,—I should be very sorry if anything in my letter was unfair to Dr. Edridge-Green, but in justice to myself I must point out that I began my experiments with my lantern as far back as three years after my appointment to the Western Ophthalmic Hospital, which was in 1884. So that I certainly did not crib my idea from Dr. Edridge-Green. I did not know that his lantern was now in use at the Admiralty, but I had a visit some little time back from Fleet-Surgeon Collingwood—then in charge of the recruiting station in Whitehall—and he told me he was just getting another of my telechromes fitted up similarly to the one in use in Victoria-street.

I find no difficulty in using wools and the telechrome if a sheet of some opaque material is hung across the room or passage where the lantern is placed. There is a hole in the sheet, and the candidate looks through the hole at the lantern, while he himself remains in daylight with the wools on a table before him. The colours in my telechrome may not satisfy Dr. Edridge-Green, but I have found them quite sufficiently good to detect numerous cases of colour blindness, some of which had passed the Holmgren wool test alone quite easily; and I do not believe that any man who can pass my combination test as described in my previous letter would be a source of danger either in a ship or on a train. In conclusion, I must say I still prefer my own method of varying the illumination. I think, with all due respect, that increasing or decreasing the illuminant by moving a lever is simpler and better than the introduction of neutral-tint glasses. However, "chacun à son gout!"

I am, Sir, yours faithfully,

A. ST. CLAIR BUXTON.

Mansfield-street, W., March 6th, 1911.

EYE-STRAIN IN RELATION TO GENERAL HEALTH.

To the Editor of THE LANCET.

SIR,—Mr. Kenneth Campbell in THE LANCET of Feb. 25th, p. 541, criticises Dr. James Hinshelwood's explanation of the reason for the discomfort to which small degrees of astigmatism give rise. In my opinion, the true explanation is that the discomfort arises because the error is so slight; the patient makes no effort to correct it, and therefore the brain pictures are blurred and their mental interpretation requires the employment of more nerve force. If it were a pure case of muscle fatigue compensatory hypertrophy ought to counterbalance it, and the rule of the smaller the error the greater the discomfort would be exactly the reverse of what we know is really the case.

Refractive errors give rise to brain-fag and eye-strain. The latter is really much the rarer and is associated with efforts made to balance mal-adjustments of the eyes in binocular vision and long sight when of *medium* amount. Brain-fag arises from congestion of the high visual centres owing to the difficulty of interpreting "slightly fogged" pictures and unequal visual representations, and leads to anæmia of other centres and the various organs which demand a good blood-supply. One has only to recall the effect of mental concentration on the hearing centre, on digestion, and on the circulation of the hands and feet, to understand how effects can be brought about by a "mental circulatory congestion of the visual centres." High errors of refraction do not produce the same effects because the sensitive portions of the retino-cerebral tract are less finely developed. They produce an effect only when one meridian is emmetropic—viz., a doubly sensitive visual centre—and its results become manifest in the next generation who inherit a hypersensitive nervous system. These theories can be confirmed by careful observation and show the great need which exists for correcting all errors of the eyes at the earliest possible age in life. Their influence in these days of education accounts for a large number of the so-called cases of neurasthenia. The subject is one too large for the space of a letter to discuss at any length, but one I hope to treat of at length on some other occasion.

I am, Sir, yours faithfully,

Manchester, March 2nd, 1911. A. A. BRADBURNE.

THE MEDICAL SERVICE IN FRENCH THEATRES.

(FROM A CORRESPONDENT.)

IN France they manage some things better than we do in this country: "Le Service Médical dans les Théâtres" proves this, but not in a very convincing way, for, as we shall see, we have here a very good idea but one indifferently carried out. If any mishap occurs in a London house of entertainment and a medical man happens to be among the audience the sufferer receives immediate attention of a kind. The medical man who is present can render first-aid and give instructions as to the removal of the patient, but there is no obligation, statutory or otherwise, on the part of the management of a house of entertainment to make provision for any unforeseen event which may arise. Things are different in France, where theatres, cafés-concerts, and other public amusements are directly under the supervision of the police under powers dating from 1790. The last police ordinance is dated August 10th, 1908, and by it the supervision of the Prefecture of the Police starts before the building is erected. Of the various provisions laid down for the safety of the public those with which I am now concerned are the *service médical*. Article 227 enacts that every establishment of the first category (that is, theatres) and every establishment of the other categories (circuses, hippodromes, velodromes, cafés-concerts, and other analogous establishments capable of showing scenes and other accessories of the stage), constructed to accommodate 800 persons or more, shall provide a medical service. *Le médecin de service* at the first requisition must be upon the spot to render professional assistance not only to the spectators but to the *personnel* of the establishment. A room suitably furnished shall be arranged *pour le service médical*. By Article 228 it is enacted that the medical men chosen by the management shall be approved by the Prefecture of Police, save the medical men of the *théâtres nationaux*, who are appointed by the Ministry of Public Instruction and Fine Arts. Article 229 requires the management to notify to the *Préfecture de Police* the manner in which the *service médical* will be assured and regulated. The service by Article 230 must be organised in a manner so as to have a medical man always present in the establishment from the commencement of the performance until the end thereof, as well as at all rehearsals. To ensure the attendance of a qualified practitioner Article 231 declares that if *le médecin de service* is

[1] THE LANCET, Feb. 18th, 1911, p. 424.

[2] See Proceedings of the Royal Society of Medicine, November, 1910, and a paper now appearing in Professor Schäfer's Journal of Experimental Physiology.

prevented by any reason whatsoever from attending the performance, he shall immediately notify the management of the establishment that he will take the steps necessary to ensure the attendance of another medical man as a substitute. It is provided by Article 232 that every medical man who shall be shown to have been neglectful or unskilful in his service shall be struck off the list of doctors of the establishment, and his services replaced by the management in the conditions provided in Article 229. As to the furnishing of the surgery, Article 233 provides that a box of remedies shall be provided in the *cabinet du médecin*. This box of remedies shall contain things likely to meet the most urgent needs, and shall carry upon the inside of the cover the names of the medicaments and objects which are contained therein. *Le médecin de service* shall see that the instruments are always in a good state and that the medicaments have not deteriorated. He must transmit to the prefecture the result of his observations from time to time.

The police order from which the foregoing is taken supplements an ordinance of May 12th, 1852, and although that of August 10th, 1908, says little about the equipment of the medical man's room, yet we learn something of it from the discussions at the last Congrès International de Sauvetage which met at Brussels. The place for the reception of patients must have a bed, or a couch with pillows, chairs, a table, a wash-jug and basin, a water-bottle and glasses, napkins, a *couverture* of wool, some flannels, and a chandelier. The latter is explained from the fact that in 1852 there was no electric light. The medicaments, instruments, &c., are also scheduled. In effect, the ordinance stipulates that there shall be kept in the *cabinet du médecin* court plaster, amadou, lint, a dozen compresses, bandages, artery forceps, surgical needles, and splints and pads of different dimensions. For circuses and hippodromes there must be provided gouttières (wire-gauze splints) for the thigh, leg, arm, and forearm. The medicaments are, *inter alia*, distilled mint water, eau de Cologne, camphorated spirit, acetate of ammonia, sulphuric ether, packets of emetics of 5 centigrammes each, flour of mustard, and sugar.

The foregoing provisions apparently are satisfactory, but this is not exactly the case. Although Paris possesses a *conseil de salubrité* it seems, as was stated at the Brussels Congress, an anomaly that the duty of supervision should be vested in the prefecture of police. Article 233 of the last ordinance providing that the instruments, medicaments, &c., shall be in good state ends, "*Il devra Nous transmettre ses observations.*" The *Conseil de Salubrité* consists of doctor, pharmaciens, and others well qualified to have the supervision in general, yet it has not that power direct. It is the Prefect of Police who has to see that the theatre has a surgery, that it is properly furnished, that the box of medicaments does not want any of the medicaments that the *Conseil de Salubrité* considers of importance, and that its contents shall represent modern pharmaceutical knowledge and be in good condition.

The *Gaulois*, by no means satisfied with existing arrangements, goes so far as to say that if peradventure a person with a curious turn of mind went into the *cabinet du médecin* in some of the theatres and saw the box of medicaments, if it were not for its shape he would be pardoned for assuming that it was a case of Burgundy, for the dust upon it is sufficient to rejoice the heart of any butler. The writer in the *Gaulois*, generally well informed, proceeds: "A lady or gentleman in the audience may be taken ill, she suffering from the heat, and he, if he be waiting for a friend, from the crush. They are at once taken to the *cabinet du médecin*, and the doctor invariably orders the patient to the balcony. If the fresh air is inefficacious the doctor orders the patient's removal to the nearest pharmacy." The *Syndicat des Medecins des Théâtres*, consisting of 450 members, demand that the present state of things should be reformed, and in view of their mission and their responsibility they sent to the Brussels Congress Dr. Saqui. The doctor has already caused some commotion in managerial circles by the action he has taken, and at the congress he called for the strict observance of Articles 227 to 233 of the ordinance which I have discussed above. Dr. Saqui's resolution was carried unanimously. The *Gaulois* further points out that a place of entertainment may accommodate only 799 persons, and thus not come under M. Lepine's ordinance, and it calls for the extension of Article 227, so as to bring the smaller houses of entertainment within its operations.

It should be added there is no particular statutory obligation for theatres to have a medical practitioner in attendance during the performances, but the power of imposing such an obligation belongs to the municipal authority, represented in each commune by the mayor, except in Paris, where such power is vested in the Prefect of Police. The national theatres referred to in Article 228 of the ordinance are the Opéra, the Comédie Française, the Opéra Comique, and the Odéon. From the construction of Article 228 of the ordinance it seems clear that the management pay the practitioners for their services, but in regard to the State theatres the ordinance gives no indication as to whether the doctors are paid out of the public funds or by each individual theatre.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

Leeds Sewage Works.

IT may be remembered that some three years ago the West Riding Rivers Board took action against the Corporation of Leeds in connexion with the inadequate treatment of the sewage of the city, and that an order was made that "the defendants do forthwith commence and diligently proceed to carry out the necessary works to enable them to treat and deal with the whole of the dry-weather flow of liquid falling or flowing into the river Aire through the sewers and sewage disposal works of the defendants." Following on this the corporation has acquired a large area of land at Temple Newsom, and work has been going on actively. For many years there is no doubt the purification of the sewage, prior to its being turned into the river, has been most inadequate. For the present, however, Leeds is doing all it can to meet the demands of the rivers board. A complete sludge pressing plant has been put down to deal with the sludge after precipitation in the tanks, and now about 1000 tons are dealt with daily by being pressed into cakes which are used as manure. With the purchase of the land, however, there will follow the supplementary part of the scheme—namely, the provision of bacteria beds to which the effluent from the tanks after sedimentation will be pumped a distance of some two miles. The power required for the pumping will be provided from the electricity works of the corporation. However quickly the work goes on, and no time is to be lost in getting out specifications as soon as the consent of the corporation is obtained to the scheme, it will of necessity be at least two years before the new beds at Temple Newsom can be in actual use. It will also be necessary to construct two new large sewers, and in all it is understood that the scheme will involve an expenditure of £1,277,000. The ratepayers must console themselves with the knowledge that the expenditure is absolutely necessary, that the expense will be spread over ten years, and with the comforting reflection that Leeds may in the future have a river running through it which is not an offence to the eyes and to the nose.

The Leeds Association for the Prevention and Cure of Tuberculosis.

The annual meeting of this association was held lately under the chairmanship of the Lord Mayor, Mr. W. Middlebrook, M.P., and was well attended. The hospital for acute cases is housed at Armley in the old family house of the Gotts, and a pleasing feature at the meeting was the announcement that Mr. Frank Gott, the representative in Leeds of that family, had as a coronation gift remitted the rent for the current year. The committee, in presenting its eleventh annual report, mentioned that the association now possesses 90 beds—35 at Gateforth and 55 at Armley—which is an increase of five on last year. At Gateforth 134 patients were treated as against 125 last year, while at Armley the numbers were 217 as against 207. In the out-patient department there has been a considerable increase of work, and this has involved the extension of the premises in Great George-street. During the past year the association has had the services of a visiting nurse, who has followed the patients to their homes and advised them in their efforts to carry out the advice of the medical officers of the institution. At Gateforth it is intended, when the increased accommodation for children is provided, to arrange for the presence of a skilled teacher who will carry on educational methods in the same way as is now being done in the open-air schools in

various parts of the country. The children in this department will be those with the mildest manifestations of tuberculosis and those who, though not consumptive, come from homes in which they are clearly exposed to infection. It was pointed out that the number of deaths from consumption in Leeds last year was 510 and from other forms of tuberculosis 241. The number of cases voluntarily notified last year was 1942, as against 934 for the previous year. It is clear that the association is doing excellent work and that it deserves every encouragement and support.

Leeds Association for Nursing the Sick Poor.

The annual meeting of this Leeds charity was held recently under the chairmanship of the Lord Mayor, when the record of the work of the past year was laid before the subscribers. This charity, supported entirely by voluntary subscriptions, is regarded as one of the most useful and possibly the least liable to abuse of all the charitable institutions of Leeds. The two special features by which it is characterised are that no case is undertaken by the association which is not under the care of a medical man, and that its main object is the nursing of the necessitous poor in their own homes. Patients are brought under the notice of the society in various ways; thus last year 2147 cases were recommended by private medical men and by club doctors, 315 by the officers of the Public Dispensary, 193 were patients who had been in the infirmary, 19 were former patients of the Hospital for Women and Children, while 371 were attended at the request of neighbours, 62 at that of clergymen and visitors, and 36 at that of inspectors, Poor-law medical men, and the Charity Organisation Society. There were on the books at the end of the year 283 patients, so that the total number of patients attended during the year 1910 was 3426, and on these the number of visits amounted to 87,806. An arrangement has been in operation with the Public Dispensary by which the attendance of a nurse has been secured for a certain number of hours daily, and this has been found of the utmost use. There are now four centres, and as soon as funds will allow other centres, for which there is a continual demand, will be organised. All who have worked, as your correspondent has done, with the assistance of these nurses will appreciate the excellence of the work which is being done, and bear testimony to the necessity of an extension of the scope of its activities. During the last year an experiment has been made in the provision of a special nurse who, on the payment of a small sum, will visit patients at their own homes, and in this way those whose circumstances do not permit of their securing the undivided services of a trained nurse, but who can afford a small sum, have privileges at their command which experience has shown that they are not slow to avail themselves of. It is hoped that this part of the work may increase, and care is being taken by a scrutiny of the applicants that abuse does not creep in on the part of those who could afford nurses from any of the private institutions of the city.

March 7th.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Death of Dr. William Williams.

THROUGH the death at Bournemouth on Feb. 16th of Dr. William Williams, medical officer of health of the county of Glamorgan, the county council has lost a loyal and efficient official and the public health service one of its most prominent members. He had been ailing for some months, and at the beginning of the year was given leave of absence for three months in the hope that a period of complete rest would restore him to health, but the anticipation unhappily was not fulfilled. Dr. Williams was born near Dolgelly in 1857 and was educated at the Dolgelly Grammar School, later proceeding to the Aberystwith College of the University of Wales and to Oxford, of which University he was M.A. and M.D. He also held the D.P.H. of Oxford. In 1892 he was appointed the first medical officer of health of Glamorgan and at once set about making a sanitary survey of the whole county, the record of which placed him at once in the front rank of sanitarians. He displayed great industry and much painstaking research in the collection of statistics relating to the incidence of puerperal fever and elaborated his original observations in the Milroy lectures in 1904. His most important work in later years was an elaborate report upon the water-supplies of the county of Glamorgan, which led the county council to decide to ask Parliament, though unsuccessfully, to sanction the formation of a water board for the county. The establishment of the Cardiff City and County Public Health Laboratory was largely due to his advocacy, and the good results which were anticipated from its formation have been more than justified. Dr. Williams was rarely, if ever, at cross purposes with the local authorities with whom he was brought officially in contact, and although of a somewhat retiring, almost shy, disposition he could hold his own in any of the controversies in which he was engaged, though his strength lay rather in the thoroughness with which he mastered his subject in the study than in his ability as a debater. The county council had come to regard him as a competent and safe adviser in the many problems with which it is beset in a rapidly growing industrial district, and the district councils accepted his recommendations, even though they sometimes acted upon them somewhat tardily. His death at the comparatively early age of 54 years is a source of great regret to all those with whom he was brought in contact, and the sincerest sympathy is felt with his widow and her three children in the loss which they have sustained.

Swansea General and Eye Hospital.

The Swansea Hospital was established in the year 1817, though the principal portion of the present building was not erected until the year 1869. Since that date extensions have been made, including a circular operating theatre, and there is now accommodation for 140 patients. During last year 1836 patients were treated in the wards and 9032 out-patients were dealt with. The finances of the institution appear to be in a satisfactory condition, for the expenditure of £9816 was more than met by the income to the extent of £800. It has been realised by the board of management for some time that the resources of the institution were being overtaxed, and a scheme has now been proposed by which 80 beds will be added to the hospital, a new dispensary will be erected, and a separate nurses' home provided. The scheme also includes a new waiting lobby, a covered way over the main entrance, additional bedrooms for the staff, rearrangement of the kitchen, and operating theatres for the eye hospital and for the out-patient department. The estimated cost of these alterations is about £30,000, towards which sum nearly one-fourth has already been promised.

March 7th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal Edinburgh Asylum.

THE annual meeting of the Royal Edinburgh Asylum for the Insane was held on the afternoon of Feb. 27th in the City Chambers, Edinburgh, Lord Provost Brown presiding. The managers' report states that during the year the number of patients under treatment at Craig House reached its maximum, there being at one time 226 patients paying the higher rates of board. In the West House also the numbers had increased. The financial position of the asylum was satisfactory and the managers had embarked on the renovation of West House. The physician-superintendent, Dr. G. M. Robertson, read his report, which stated that the total number of patients on the register on Dec. 31st was 758, of whom 12 were absent on probation. There came under treatment during the year 947; cases discharged recovered numbered 70; discharged unrecovered 59; died 60. As causes of insanity alcoholic excess continued to hold the premier place. There seem to be indications that among men this cause was tending to diminish, but among women there was a decided increase. Influenza took the next place as an exciting cause. Political excitement had not furnished any cases of insanity during the year. Two cases were quoted in which cure was rapid after the administration of thyroid gland, and one of the insanity of exophthalmic goitre where cure resulted from treatment by the serum of a goat from which the thyroid

had been removed. In view of the interest aroused at present in the question of divorce for insanity the length of residence before cure becomes a matter of interest. Three patients recovered who had been respectively 6, 7, and 15 years in the asylum, and in another case insanity had lasted for over five years. These cases were all cases of melancholia, so that if ever incurable insanity of five years' duration be made a legal cause for divorce cases of true melancholia could hardly be included. The total number of deaths was 60, a proportion of 8 per cent. of the average number resident and the lowest death-rate for over 20 years. There were only five deaths due to consumption and in only one of these phthisis was not present on admission. The most important event of the year was the meeting of the Medico-Psychological Association at Craig House. At that meeting several papers were contributed by members of the Craig House staff. On the laboratory of the asylum the managers were spending £600 a year in salaries and working expenses, including therein a contribution towards the laboratory of the Scottish asylums of £175. The public might be assured that the gift of £100 or £150 towards the support of a research scholar would be money well expended at the present time. Salvarsan had been used in the treatment of general paralysis of the insane. In a good many cases there was no apparent benefit, but one case, one of the first to be treated, made almost at once the best apparent recovery of any case of undoubted general paralysis that Dr. Robertson had yet seen. He believed there was a defect in the links of the chain of reactions in the treatment of general paralysis by salvarsan. He was remedying this fault by injecting at the same time human serum from patients treated by salvarsan for another disease. The combined method gave more hope in combating the disease. With regard to the nursing, he had endeavoured to convert the asylum into a true hospital for the treatment of a special disease, administered on the lines of a general hospital, with female officials.

Workmen's Compensation and Medical Examination.

The Lord Justice Clerk in an important arbitration case under the Workmen's Compensation Act last week stated that where the employer intimated that he was prepared to pay compensation under the Act, and called upon the workman to submit himself to medical examination, any unnecessary delay on the part of the workman in submitting himself to examination would cut him off from compensation during the delay.

Aberdeen Sick Children's Hospital: Annual Meeting.

The annual meeting of the Royal Aberdeen Hospital for Sick Children was held in the Music Hall, Aberdeen, on March 1st. The financial statement showed that the ordinary income for the year 1910 came short of meeting the ordinary expenditure by £1192 10*s.* 10½*d.* Fortunately, however, during the year £2750 2*s.* 2*d.* were received in legacies, and £1150 2*s.* 2*d.* of this sum were transferred to the revenue account, thus reducing the deficit to £42 8*s.* 8½*d.* The sum of £600 was received during the year for the permanent endowment of a cot to be named "Stewart Wilson Cot, in memory of Betty Gow." As a result of the appeal for subscriptions for the new hospital fund £10,555 7*s.* 1½*d.* have already been received. The annual report showed that the number of in-patients for the year has been 954 and the number of out-patients 1892. The cost has been about 2*s.* 3*d.* per child per day. The report was unanimously adopted

Carnegie Trust and Medical Inspection of Children.

The report of the Carnegie Dunfermline Trustees on the medical inspection of school children which is undertaken by them has just been issued. When so much discussion has taken place regarding the various methods of carrying out this work, and so many different ways have been adopted by the numerous authorities for inspecting the children under their control, it is interesting to hear what measures have been taken by a burgh where in this matter expense is no object, and where an organisation is already in existence which should be able to give to the scheme its fullest development. The system in Dunfermline, which is carried out at the expense of the Trust, is much more elaborate and thorough than that adopted by any other town in Great Britain. In most other places public authorities could not afford to burden the rates with the expense which is borne by the trustees in making the system so efficient. The report, which is the work of Mr. John C. Bridge, is a volume of about 90 pages of charts and letterpress. At the outset it is stated that the inspection has been carried out on the following lines: Complete examination of the children at the four school periods, inspection of every child, and a complete examination of those children who have special defects, or who on inspection are deemed to require a special examination. In that way 4454 children have been examined and inspected during the year. Dealing with the school buildings, Mr. Bridge points out that two are not well situated from the health standpoint. Regarding nutrition, the report says that each year has shown that the children of Dunfermline fall below the general standard. Two factors contributing to the lack of proper nutrition are the want of sufficient sleep and the work as messengers done by school children after hours. Dr. Bridge expresses the opinion that one hour for dinner is too short, and adds that in 102 badly nourished children he found no trace of organic disease, their condition being due rather to want of proper feeding. In regard to cleanliness the standard is being raised, but he suggests that every house now built should have a bath, which he looks upon as being as necessary to the house as a kitchen.

Another Gift to Dundee by Mr. J. K. Caird.

Mr. J. K. Caird, LL.D., has purchased and given to the city of Dundee Spring Grove mansion house with an acre of garden to serve as a resting-place and reading-room for the aged and infirm; also £1000 to provide for repairs.

March 7th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Dinner of the Dublin University Biological Association.

THE annual dinner of the Dublin University Biological Association was held last Saturday, some 80 covers being laid. Mr. W. I. de C. Wheeler, the President, was in the chair, and among the speakers were Sir Thomas Myles, Professor W. H. Thompson, Mr. W. Kennedy, Mr. E. H. Alton, Mr. Frazer, and Mr. Culverwell. Mr. C. Arthur K. Ball has been elected President for next session.

A Compliment to Sir Charles Cameron.

The members of his staff in the public health office of Dublin have presented to Sir Charles Cameron a replica in Irish walnut of the Speaker's chair in the Irish House of Commons.

Death of Dr. Patrick O'Keeffe.

Dr. Patrick O'Keeffe, who died last Sunday, was for many years senior medical officer to the Mountjoy Prison in Dublin. He began his career in the prison service in the old convict prison on Spike Island in Cork Harbour, where he had many of the Fenian prisoners of the '67 rising in his care. On the closing of that prison he was transferred to Mountjoy. Dr. O'Keeffe had an unerring memory for faces, so that he knew by sight an appreciable proportion of the habitual criminals in Ireland. Though a man of great humanity he never lapsed into sentimentality.

Increased Accommodation at the Royal Hospital for Incurables.

Plans for the new consumptive wing of this institution have been accepted and building is to commence shortly. The hospital now accommodates some 30 consumptives, but the new building is to afford beds for 100.

Convalescent Home, Stillorgan.

During the year 1241 patients were admitted to the Convalescent Home, Stillorgan, Co. Dublin, 933 to the free wing and 308 to the pay wing. Preference is given to those likely to be able to return to work after a short stay in the country, and particularly to patients from the Dublin hospitals. No fewer than 600 patients had to be refused admission for want of space, so the committee has decided to build an annexe capable of holding 12 beds.

The Belfast Maternity Hospital.

At the 117th annual meeting of this, one of the very oldest charities in the North of Ireland on Feb. 28th the medical report submitted showed that during 1910 there had been in all 1065 deliveries—viz., 546 in the

hospital and 519 in the extern district—with only four deaths, a mortality of only 0·37 per cent. In the gynæcological department there were 400 patients treated. Financially, the year was wound up with a balance in hand of £221 12*s.* 10*d.* The balance at the end of the previous year was £235 13*s.* 5*d.* An interesting feature of the meeting was the fact that one of the principal speakers was Mrs. Crozier, wife of Most Rev. Dr. J. B. Crozier, Archbishop of Armagh and Primate of All Ireland, whose great-great-grandfather, Dr. Bartholomew Mosse, founded the Rotunda Hospital in Dublin. At his own expense Dr. Mosse opened as a hospital a house in George's-lane, Dublin. This was the first maternity hospital established in the British dominions. Two years later application was made by some well-disposed persons in London to the directors of that hospital for plans, scheme, and regulations, and a year later a hospital was established in London. The hospital in St. George's-lane became too small, and eventually Dr. Mosse, in 1748, with his own restricted means, purchased the ground on which the present Rotunda stands. Dr. Mosse died in 1759, a comparatively young man, at the age of 47 years.

Belfast Corporation Medical Officials' Salaries.

The Belfast corporation decided on March 1st to advance the salary of the medical superintendent officer of health (Mr. H. W. Bailie) from £600 to £800, subject to the approval of the Local Government Board, and of the visiting physician to Purdysburn Fever Hospital (Dr. A. G. Robb) from £480 to £580.

Ulster Medical Society.

At the meeting of the Ulster Medical Society held on March 2nd in the Medical Institute, Belfast, Mr. A. B. Mitchell read a paper on 110 Consecutive Operations for Gastric or Duodenal Ulcer, done between September, 1908, and February, 1911, in all of which gastro-jejunostomy was performed, with or without some additional operation. The following of the paper was helped by the fact that the audience had in their hands a printed synopsis of the cases. In the discussion Dr. W. Calwell, Dr. J. Rusk, Mr. J. B. Moore, Mr. J. O'Doherty, and Mr. H. Stevenson took part.

Irish Medical Association.

The annual meeting of the Irish Medical Association is to be held in Cork, for the first time in 12 years, on June 13th. The meeting will be held in University College. The Lord Mayor and the High Sheriff will entertain the guests. Interesting excursions are being arranged.

Royal National Hospital for Consumption for Ireland.

This hospital reports year by year an increase of work. Its operation is confined as far as possible to early or incipient cases of the disease, where permanent alleviation or cure might be expected. In 1910 the number of cases treated was 440, of whom 86 were in hospital at the end of the year. The medical report classifies 59 as "very much improved," a term defined as meaning "apparent arrest of the disease, i.e., general health is completely restored; and there are either no physical signs in the lungs, or only those signs which are compatible with a completely healed lesion"; 85 patients are classed as "much improved," i.e., with "complete restoration of general health, physical signs still present but very much diminished"; 90 were "improved"; 60 cases remained "stationary"; 31 became "worse"; and 10 died. The average stay in hospital was about 11 weeks, the maximum being 46 weeks.

March 7th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Potatoes in the Dietary of Diabetic Patients.

AT a meeting of the Société Médicale des Hôpitaux held on Feb. 17th M. Rathery said that it was an error to suppose that potatoes were an article of diet permissible to diabetic patients; he considered, on the contrary, that they ought never to be freely permitted in such cases. He quoted a number of clinical observations showing, on the one hand, that even such very small quantities of potatoes as 50 grammes might suffice to cause a reappearance of sugar in the urine, and, on the other hand, that diabetic patients did not by any means always assimilate the carbohydrates of potatoes more easily than those of other starchy foods; they sometimes even assimilated them less easily. Speaking generally, it might be said that in the majority of cases of diabetes potatoes were to be considered as an article of food similar to other dietetic substances rich in carbohydrates. In some cases, however, potatoes seemed to possess special properties of assimilation which might be either greater or less than those of other starchy foods. This was in fact a particular example of the law discovered by Bouchardat, according to which each diabetic patient had a personal coefficient for the quantitative and qualitative utilisation of carbohydrates.

Hæmoglobinuric Bilious Fever in the Island of Réunion.

Speaking on the subject of hæmoglobinuric fever at a meeting of the Société de Pathologie Exotique M. Ozoux said that an experience of 54 cases had led him to believe that no reliance could be placed on any of the orthodox remedies whether general or local; the jaundice, the pyrexia, and the hæmolysis usually resisted all forms of medication, and the disease came to an end without the clinical history supplying reasons for attributing the patient's recovery to any particular detail of the treatment. The best method seemed to M. Ozoux to be the administration of large doses of alkalies just as in yellow fever. Subcutaneous injection of fresh white of egg appeared to him to have a favourable effect on the hæmolysis and on the progress of the disease. The malarial origin of the disease and the influence of treatment by quinine were not proved. The mortality was 27 per cent. of the cases. Severe forms of the illness with hæmorrhage, uræmia, well-marked jaundice, and speedy death were frequent.

Plague in Manchuria.

At a meeting of the Academy of Medicine held on Feb. 21st M. Chantemesse made an interesting communication on the subject of the present severe epidemic of plague in Manchuria. He said that the marmots of Lake Baikal were very susceptible to the microbe of plague, and that the first persons attacked were six hunters in October, 1910, their symptoms consisting of spasmodic cough and profuse expectoration soon followed by death. The bacillus causing pneumonic plague, which was the prevailing type of the present epidemic, was allied to the bacillus which had been isolated in the bubonic form of the disease. Persons between 20 and 40 years of age were peculiarly liable to be attacked. The disease was spread principally by means of the railways on which germ-carriers were crowded together in the third- and fourth-class carriages. As the period of incubation was from eight to nine days, the distance to which germ-carriers were capable of conveying the infection might be imagined. The return of fine weather checked the progress of the disease, but did not arrest it. Prophylactic measures of vaccination had rendered great service in Manchuria.

Bequests to Scientific Institutions in Paris.

M. Loutreuil, a Frenchman of humble origin, who possessed little if any education at the time of leaving his native village, subsequently acquired an amount of scientific knowledge which he applied profitably in various industrial enterprises. Having made an immense fortune by his industry and ability during a 50 years' residence in Moscow, he resolved that the greater part of it should on his death be available for the benefit of science. He has accordingly bequeathed 100,000 francs to the Pasteur Institute, 1,000,000 francs for scientific research, 2,500,000 francs to the University of Paris, and 3,500,000 francs to the Academy of Sciences.

March 13th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Hygienic Exhibition in Dresden.

THE preparations for the great International Hygienic Exhibition to be held in Dresden are almost finished, and it is expected that this one will present a contrast to some other exhibitions by being ready on the day appointed for the opening in May. The principal roadway traversing the exhibition ground will be 40 metres broad and 700 metres long, and will extend in front of the pavilions officially assigned to the different nations represented. The pavilions

of Austria-Hungary, Russia, Japan, China, Switzerland, Brazil, Spain, and Mexico will be very fine, but the handsomest and best provided of all will be that of the French Republic, for which the French Parliament has allowed not less than 340,000 francs. It is much to be regretted that Great Britain will not be officially represented, although the committee, of which H.R.H. Prince Christian is patron, did everything that was possible in the hope of inducing the British Government to reconsider its decision. The German Empire, the individual German States, and the leading cities and great corporations of the Empire will, of course, do their best to make the exhibition a success. It will be divided into a scientific section and a general section. The scientific section will provide professional hygienists with opportunities of becoming acquainted with all the recent advances that have been made in the different branches of hygiene, subjects which are presumed to be well known to experts being excluded. The general section is intended for the public at large, and will give a complete view of the arrangements of hygienic institutions. The various subjects of exhibition, illustration, or discussion will be divided into 12 groups. The first group will include questions relative to air, light, soil, and water. The second group, which will deal with the hygiene of towns and dwelling-houses, will probably be one of the principal attractions of the exhibition; the methods of planning towns and cities, the hygienic features of public and private buildings, their ventilation, heating, lighting, and sanitary arrangements, and the multiplicity of contrivances essential to modern home comforts will be shown. A sub-group will include questions relative to cemeteries and crematoria. The third and fourth groups will be occupied with food, clothing, and physical culture. In the third group rational systems of feeding will be explained, specimens of food, both of good quality and spoiled, will be shown, and the influence of unwholesome food on health will be pointed out. An exhibition of artificial food preparations will be connected with that department. In the group which includes physical culture the advantage of cleanliness for the general health will be shown. In the fifth group will be shown the influence of work on the health of the individual, together with an outline of the arrangements made for protecting the health of those who are employed in factories and workshops. The sixth group will be devoted to infectious diseases, their prophylaxis and treatment; the seventh group to hospitals, sanatoriums, nursing, and first aid; and the eighth group to whatever concerns the health and well-being of children and young persons, including the care of infants and school children. The ninth group will have for its subject the hygiene of travel, illustrated by the arrangements made for the preservation of health on railways and on board ship; a great number of models will be shown in explanation of the methods and procedures described. The next two groups will take up military, naval, and tropical hygiene, whilst the twelfth and last will consider statistical questions. In addition to these 12 principal groups there will be an historical department, including models and documents concerning hygiene in former times; a special section on the hygiene of sport and athletics of every description will be connected with the exhibition, and an extensive athletic ground will be provided for the holding of great international competitions. There will also be a "sports laboratory," in which scientific observations may be made on athletes before, during, and after their various feats and exercises. From the above outline of the programme it may be seen that the International Hygienic Exhibition at Dresden promises to be one of the most remarkable events in the history of exhibitions.

Poisoning by Margarine.

During the month of November, 1910, a considerable number of mysterious cases of poisoning occurred in various parts of Germany, some of them terminating fatally. It was, however, eventually ascertained that the cause of the poisoning was a certain kind of margarine made at a well-known margarine factory at Hamburg. Until Dec. 5th, 1910, there were 200 of these cases in Hamburg alone, together with a similar number in various other towns of Germany. It often happened that all the members of a family became ill after having eaten food prepared with this margarine. After the above date, however, only a few cases occurred because the sale of the preparation was stopped. Dr. Dunbar, chief medical officer to the hygienic institute of the State of Hamburg, has given in the *Deutsche Medizinische Wochenschrift* a description of the investigations that were made, as well as the results obtained. Margarine is very extensively used in Germany, the annual production being estimated at 100 millions of kilogrammes, having a value of 100 millions of marks = £5,000,000. It is manufactured by the chemical treatment of beef suet, to which some oil is added. A special Imperial law concerning the production of margarine stipulates, among other provisions, that it must contain at least 10 per cent. of sesame oil, and the sale of margarine is under strict control, great care being taken to prevent it from being mistaken for or sold as genuine butter. The boxes in which margarine is stocked in the shops have the word margarine printed on them. No undesirable results have been connected with the manufacture and sale of margarine until the cases of poisoning now under consideration. On inquiry at the margarine factory it was found that the poisonous product had been prepared with an oil which had been imported from India into England under the name of "cardamum oil," a specimen of which was supplied to the laboratory. It had a consistence similar to that of butter and a disagreeable aromatic smell. Administered to dogs 1·5 grammes of the refined oil produced vomiting within half an hour and contraction of the abdominal muscles, the dogs being to all appearance very ill. It was, therefore, obvious that the cardamum oil was the starting-point of the poisoning. To ascertain whether the poisoning was due to the oil itself or to some negligence in the process of refining, a quantity of the oil was refined in the laboratory itself, so that all the soluble toxic substances were removed. The result was that the action of the refined product on dogs was the same as that of the raw product. Dr. Dunbar tried to investigate the nature of the cardamum oil, but the inquiries which he made in that direction from chemists and commercial agents were completely without result, cardamum oil being totally unknown to them. The nature and the chemical constitution of the cardamum oil led Dr. Dunbar to suppose that it was identical with chaulmugra oil, especially because an examination of its optical properties showed that it produced a specific rotation of 50·4°. The high price of chaulmugra oil, which costs 9.50 marks per kilogramme, made it, however, unlikely that this oil was used in the manufacture of margarine. The cardamum oil, on the other hand, cost the factory only 21 marks (= £1 1s.) per 100 kilogrammes. Dr. Dunbar then made inquiries as to whether a similar low-priced fat could be obtained from some other euphorbiaceous plant, and he succeeded in ascertaining that the so-called "maratti" fat was identical in consistence, colour, smell, and chemical constitution with the cardamum oil, and that 2 grammes of "maratti" fat given to dogs produced vomiting after the same time as the same quantity of cardamum oil. He further succeeded in obtaining from the seed of hydnocarpus an oil having the same optical properties as "maratti" fat and cardamum oil, and producing in dogs the same symptoms. It thus became clear that the so-called cardamum oil used in the margarine factory was either "maratti" fat or a product derived from hydnocarpus. Three grammes of this margarine actually produced the same symptoms in dogs as 2 grammes of "maratti" fat. Margarine from other factories given to dogs was harmless. It is obvious from this incident that some control is needed over the use of the oils which are admixed with the real margarine.

March 6th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Mania Errabunda.

THE press has been recording an unusual number of cases in which individuals, male and female, have left their homes and accustomed associations and, though traced to several points of their route, are still baffling the efforts of interested search parties. Descriptions of their personal appearance, of their dress, of every detail in fact which can lead to their discovery and reclamation, are accompanied by surmises as to the cause of their wayward obsession, "loss of memory" being the most common of these. In more than one case it has been made out that epilepsy has been not unknown in their family, while their demeanour for some time

before their abandonment of house and home has been suggestive of melancholia, incipient, if not confirmed. "Mania errabunda," according to a well-known medico-psychologist, is characteristic of the "dégeneré" in the social order, the "tramp," for instance, so familiar to rural life, illustrating in the individual what in racial or tribal grouping appears as the gipsy. Apart from the prominence lately given to three or more dramatic disappearances in the Italian press, and to at least as many in that of transalpine countries, the "wandering disease" is a subject of special interest to the profession in these days when neurasthenia, in its protean forms, is apt to culminate in psychoses hitherto but little encountered, associated as two of the Italian cases undoubtedly are with the artistic temperament and the emotional, not to say sensuous, life!

"Physiognomic Diagnosis."

Among the clinical teachers and consultants of the mid-Victorian era in Great Britain Professor Laycock of Edinburgh used to insist on the value of this as a guide to the nature, as well as the presence and prognosis, of disease. Set forth with much ingenuity and illustrative detail in his work on "Mind and Brain," his doctrine found acceptance abroad, particularly in Italy, where it numbered its most authoritative exponents in physicians who made a special study of infantile ailments. Physiognomic diagnosis indeed they maintained to be an indispensable resource in the case of inarticulate little subjects who could not explain or indicate their feelings, and the experience acquired in the children's ward served them in good stead even in the case of the adult or the elderly when oral utterance or explanation was difficult or defective. An interesting illustration of this was lately witnessed, according to report, in the case of Professor Mya, the leading Italian consultant in diseases of infancy, with which he combined a large experience in practice among the grown-up. He had himself been struggling against the infective malady prevalent in Florence, and though feeling ill continued to make his professional rounds. When sitting with his family at dinner he suddenly felt a sinking sensation. "Give me the hand-mirror" (*dammi lo specchio*), he said. A moment's glance seemed to satisfy him as to everything that facial expression could reveal. He recognised the first indications of the "facies Hippocratica" and had no longer the "will to live" any more than the power. He soon passed away knowing that his hour had come.

March 4th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

Vital Statistics in New York City.

THE New York records for 1910 show a decrease in the annual deaths of 13,066 persons, due to the increased sanitary control over disease. Tuberculosis claimed 1840 fewer victims, pneumonia 2203, and nephritis 1317. The lives of over 6000 infants were saved and of 6600 persons between the ages of 5 and 65 years; of those over 65 a little less than 500. A somewhat increased list of deaths from appendicitis is believed to show merely improved diagnosis, many such cases having been formerly attributed to acute indigestion. The Health Department has determined to prosecute physicians and midwives neglecting to register births; 35 cases have already been settled, mainly out of court, and some 50 are pending. During the month of January last there were registered 12,057 births, an increase over January, 1910, of 457. An amusing disclosure in connexion with births is the estimate of a telephone company that each birth causes on an average 300 telephone calls.

Cocaine and its Derivatives and Morphine.

The Health Department of New York has found it necessary to increase the stringency of its regulation of the sale of cocaine as well as of opium. Its latest ruling demands that:—

No cocaine or salts of cocaine, eucaine, stovaine, alpha or beta eucaine, either alone or in combination, or any substance under any other name giving a similar chemical test of cocaine, and no opium or official preparations of opium, and no morphine or salts of morphine, or the derivatives of either or any of them, shall be sold at retail by any person in the city of New York except upon the written prescription of a physician duly authorised to practise as such, or other person duly authorised by law to practise medicine and administer drugs or perform surgery with the use of instruments. Any such prescription shall not be refilled.

Exceptions are made in favour of official preparations of which the maximum dose is not greater than one-half grain of opium or its equivalent, and of liniments plainly marked as poisonous.

Annual Report of the New York State Commission of Prisons.

The annual report of the New York State Commission of Prisons has been recently issued. The report states that the prisons of New York State are greatly overcrowded. With a cell capacity for 1200, an average of 1850 men are confined in the old prison of Sing Sing on the Hudson. Some of these are housed in one of the chapels and in the loft of one of the workshops. Moreover, the cells themselves are small and insanitary.

Milk Depôts in New York.

New York is preparing to open 12 depôts for the free distribution of pure milk under the auspices of the Health Department. It is estimated that the cost will be about £8000 annually. They will dispense milk exclusively for the use of infants, thus avoiding conflict with two large private charities which distribute milk to all properly accredited applicants, and will pasteurise at a nominal charge all milk that is brought to them by those who prefer to avoid the appearance of mendicancy by purchasing their own supplies, but who cannot afford to install the apparatus for efficient sterilisation.

An Attack on St. Luke's Hospital, New York.

St. Luke's Hospital, a wealthy and influential institution, was recently the subject of a sensational attack by a man whose mother died in the institution; he brought charges of neglect, cruelty, favouritism, of forcing charity patients to do menial work, and others of similar tenour. The immense number of persons, quacks, followers of the "New Thought," "Christian Scientists," patent medicine manufacturers, and the like, who have grudges against the medical profession, quickly seized upon this incident to flood the papers with corroborative stories. As might have been expected, the subsequent investigation completely disproved the charges, but it furthermore brought out the fact that probably nowhere in the world is there such friendly coddling of patients as in St. Luke's. The staff is numerically very strong, which allows unusual time to be given to the needs, real or fancied, of each patient, and the nurses are recruited with discrimination. As an example of the generosity, if not the wisdom, of the institution it was learned that there is an unlimited supply of milk to be had night and day to which patients may help themselves. In the particular case concerning which the charges were brought it was found that the patient was irrational and that her hallucinations were quite misunderstood by the relatives.

Dinner to Dr. Stephen Smith.

Dr. Stephen Smith, the Nestor of the medical profession of New York, was entertained at dinner by the medical profession at the Plaza Hotel on the occasion of his eighty-eighth birthday on Feb. 18th. About two hundred medical men were present. Dr. Smith, in responding for himself, dealt chiefly with his reminiscences. He proposed a detailed State policy with regard to defectives. He would put criminals into training-schools. A large class of the insane—such as suffer from disturbance, not from disease, of the brain centres—he would place under skilled care. The others might be made useful by colonising large areas of farm lands with diversified industries. Dr. Smith has had a distinguished public career. He was one of the first heads of the New York Board of Health, and was also at the head of the New York department of charities.

Death of Edward Gamaliel Janeway, M.D., LL.D.

Dr. E. M. Janeway, one of the best known physicians of America, died at Summit, New Jersey, on Feb. 10th. He was born in August, 1841. Since 1864 he had practised continuously in New York city. He held many hospital appointments and had been professor of pathological anatomy, professor of medicine, and dean of the medical college of Bellevue Hospital. He was for many years Health Commissioner of New York city. Dr. Janeway was a quiet reserved man, not a prolific writer or speaker, but one who commanded the

entire confidence of the profession as a clinician, and was particularly noted for his skill in diagnosis.

Investigations in Regard to Poliomyelitis.

The Rochester, N.Y., Academy of Medicine has adopted resolutions asking the State Department of Health to make investigations into epidemic poliomyelitis, and petitioning the legislature to make an appropriation for the suppression of the disease. In the resolutions it is stated that "the attention of the State Commissioner of Health is called to the facts that poliomyelitis is prevalent in Canada along the Niagara frontier, and that there is constant intercourse during the summer between Canada and New York State, and that therefore interchange of information and an agreement as to quarantine regarding poliomyelitis between Ontario and New York State would be most desirable."[1]

Philadelphia Census of Defective Children.

A census of defective children in the schools of Philadelphia shows that there are therein 11,543 mentally defective pupils. Three kinds of deficiencies are mentioned in the report: (1) the "physically deficient," embracing the blind, deaf, speech defective, crippled, and epileptics; (2) the "mentally deficient," backward, feeble-minded, and imbecile; and (3) the "morally deficient," truants and incorrigibles. The first class, those who require instruction by special methods in small classes, number 1857 boys and 1063 girls; dull children who would be benefited by special instruction number 3362 boys and 3241 girls. Class 2. Feeble-minded children, who should really be in an institution, number 287 boys and 155 girls. Class 3. Truant, incorrigible, and vicious children of defective mentality, who should be segregated in special schools, 387 boys and 607 girls; truant, incorrigible, and vicious children of fair mentality, who should be segregated in special schools, 1082 boys and 40 girls.

Bill Forbidding the Marriage of the Unfit.

It is stated that a Bill has been introduced into the Pennsylvania Legislature forbidding the marriage of imbeciles, epileptics, and persons of unsound mind, of male paupers, of persons suffering from transmissible disease, or under the influence of alcohol or narcotic drugs. The definition of what is a transmissible disease may give some trouble.

Singular Case of Aphasia.

At the time of the tremendous dynamite explosion of Feb. 1st at Jersey City, immediately opposite New York, where the shock was plainly felt and thousands of square feet of window-glass were shattered, a young female stenographer was riding on a New York tram-car and sustained a shock which deprived her of speech and memory. She was found in this condition two days later, wandering about the streets of Poughkeepsie, 100 miles from New York, quite unable to give an account of herself. She was taken to the Hudson River State Hospital at Poughkeepsie and there hypnotised. On recovering consciousness the girl was able to recall everything up to the time of the shock, but nothing subsequent thereto.

Straus Milk Plant in Washington.

On Feb. 6th the United States Senate passed a Bill authorising the Secretary of the Treasury to accept the milk depôt and laboratory maintained until now in Washington by Mr. Nathan Straus. The depôt will be worked by the Public Health and Marine Hospital Service.

Responsibility of a Municipality for Disease.

The Supreme Court of Minnesota has recently decided that if the plaintiffs in a recent suit against the town of Mankato in that State can prove their plea, that deaths from typhoid fever were caused by the negligence of the town authorities, they may recover damages. This decision will probably be of wide-reaching importance. Hitherto such cases have been dismissed as "acts of God": now the owners of town water-supplies, municipal or private, will be stirred into unprecedented activity. There have been in various parts of the country disquieting instances of stifled inquiry into the causes of similar epidemics, particularly where private capital was involved.

Reported Cure of Lock-jaw.

An uncorroborated report comes from Minnesota of the cure of a case of tetanus by the intraspinal injection of a solution of Epsom salts. The case is said to have followed the loss of the patient's finger in a corn-shredder.

Feb. 28th.

[1] THE LANCET, March 4th, 1911, p. 628.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

The Malaria Committee of Bengal Presidency.

A RESOLUTION by the Government of Bengal, sanctioning the appointment of a Provincial Malaria Committee, has been promulgated:

> With a view to the systematic examination of problems connected with the prevalence of malaria, the Government of India have appointed a Central Scientific Committee, in consultation with whom the provincial organisations should in future work, and the recommendation on this point of the conference which assembled at Simla in October, 1909, to consider the whole subject of the prevention of malaria is quoted below:—"The Conference having learnt that the Government of India will appoint a Central Scientific Committee to direct and coördinate investigations, and that they will also appoint at the request of local governments, or on the recommendation of the Central Committee, officers to carry out investigations, recommends that a local organisation to work in consultation with this Central Committee be constituted in each province. The nature of each organisation should be settled by the local government and may take the form of the sanitary board. A conference consisting of the members of the Central Committee and a delegate from such local organisation should be held annually at such place as may be convenient for the purpose of reviewing the work done and preparing a programme of future work."

With the approval of the Government of India, and with the consent of the gentlemen named below, the Lieutenant-Governor in Council has decided to appoint a Provincial Malaria Committee in Bengal, which shall comprise the following members:—The Members of the Executive Council of the Government of Bengal in the Municipal (Medical) Department, President; the Secretary to the Local Government in the Public Works Department (Roads and Buildings Branch); the Secretary to the Local Government in the Public Works Department (Irrigation Branch); Major L. Rogers, I.M.S., M.D. Lond., F.R.C.P. Lond., F.R.C.S. Eng., Professor of Pathology, Medical College, Calcutta; Assistant Surgeon Upendra Nath Brahmachari, M.A., M.D., Ph.D. Calcutta, Teacher of Medicine, Campbell Medical School, Calcutta; Mr. Nil Ratan Sircar, M.A., M.D. Calcutta; and the Sanitary Commissioner Bengal, secretary. Questions relating to the prevention of malaria frequently present problems which have both a medical and an engineering aspect, and expert knowledge in either branch will be represented upon the committee thus constituted. The superior staff, which will be placed for the time being at the disposal of the committee, will comprise one deputy sanitary commissioner and one assistant surgeon. These officers will work under the direction of the committee, whose duty it will be, subject to the control of the local government, to supervise the direction and method of the inquiries to be undertaken, to scrutinise the results ascertained from time to time, and to assist with their advice all action taken to cope with the problem of malaria in Bengal. In other administrative matters connected with the subject, such as the distribution of quinine, the committee will be consulted by the local government as occasion may arise, while the sanitary board will be directed to seek their assistance in the consideration of the bearing upon the question of malaria prevention of any drainage projects which may be brought before them. A delegate from the provincial committee will attend annually at the Central Conference which the Government of India will convene. By the agency of the committee, the Lieutenant-Governor in Council trusts that the inquiries connected with this most important question will be conducted upon more systematic lines than has hitherto been the case, while as the result of their labours it is hoped that knowledge may in time be accumulated which will permit of the adoption of remedial measures calculated to effect a substantial diminution in the mortality and suffering at present caused by malaria in this province.

The St. John Ambulance Association.

Colonel L. E. Anderson, R.A.M.C., Principal Medical Officer, Allahabad and Fyzabad Brigades, has kindly consented to act as moderator at the competitions for the Indian Railways and Indian Volunteers' challenge shields and the St. John Ambulance Brigade Challenge Cup, to be held on Feb. 24th and 25th in the Exhibition Buildings at Allahabad.

Vital Statistics of the United Provinces for 1909.

As was to be expected in a healthy year following a period in which malaria prevailed in severe epidemic form, both births and deaths decreased in number, the total births being

102,772, as against 108,360, and deaths 123,463, as against 148,447. The excess of deaths over births, which has been a marked feature of the United Provinces statistics for some years, continued, though it amounted to only 6·68 per 1000 of the population. Special reference is not generally made by commissioners in their divisional reviews to the infantile mortality in the towns. The Sanitary Commissioner states in his report that the provincial mortality in municipalities declined from 352·93 in the year 1908 to 281·68. Forty-two municipalities returned death-rates above the municipal average, Bairampur taking the lead with a rate of 463·51. Other conspicuous figures were Sitapur (457·83), Tilhar (410·17), Khairabad (393·60), and Farrukhabad (379·94).

Appointment of Health Officer of the Bombay Municipality.

The municipal corporation of Bombay has reappointed Dr. J. A. Turner to be executive health officer of the Bombay municipality for a further term of five years from Feb. 1st, 1911. The appointment was confirmed by the Governor of Bombay in Council, who endorsed the high praise that Dr. Turner's work has earned in all quarters, "noting with satisfaction the immense improvement in the sanitation of the city that has been effected during his term of office."

Feb. 11th.

NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

Plague in North China.

SINCE my last report the epidemic has continued to rage up to Feb. 3rd, causing in Harbin alone an average of 200 deaths per diem. After this it dropped to 120, and has not risen during the past week, while every day sees a slight diminution. At the same time involution forms of B. pestis have been observed in the blood. It has been the rule rather than the exception to find the bacillus in the blood of pneumonic cases. After the epidemic had been almost stamped out at Tsitsihar (north-east of Harbin) it recurred among a regiment of Chinese soldiers sent there. Coming southward it has been found at every station on the line and in the neighbouring villages. At Changchun it has been particularly virulent. The official efforts were not strong enough to prevent the people concealing corpses in their houses with lamentable results, but the work is now better organised, being under a prefect who is also a medical man (Dr. Huang). At Mukden it still persists without diminution, and there is no town of any importance (except the port of Niuchwang) which has escaped. Roughly 80 per cent. of the cases are pneumonic, 15 per cent. septicæmic, and 5 per cent. intestinal. In the province of Shantung many villages have been affected, no doubt due to the returned labourers. A most curious feature has been the comparative freedom of the huge overcrowded cities of Peking, 750,000 inhabitants, and Tientsin, with over a million. In the former we have as yet had not more than 13 authentic cases, and in Tientsin there have been about 40. This freedom cannot be put down to sanitary measures, which are by no means ideal, though the Chinese authorities are gradually organising sanitary and preventive measures. Plague has been at the doors of these two cities thrice in the past ten years and has hitherto left them unharmed.

Inoculation.

A point of much importance that has been raised is the efficacy of Haffkine's vaccine prepared from bubonic strains as compared with that from local pneumonic bacilli. Hitherto all the vaccination has been done from bubonic strains, and notwithstanding the doubts expressed the evidence is all in favour of this course. Among the Russian staff the following deaths occurred: Two male doctors, not inoculated; one female doctor, partially inoculated, died two days after; one student, not inoculated; four ambulance men, partially inoculated; four sanitary men, not inoculated. Partial inoculation means, according to the Russian method, only half a dose the first time and a full dose the week later. One British doctor (Dr. A. F. Jackson) died 12 days after inoculation. He had become infected during the negative phase, the period of greatest infectivity, and was hard at work all the time among gangs of infected coolies. One Chinese (foreign-trained) doctor died after inoculation, but inquiry showed he had not had any reaction whatever, and it was thought probable from inquiries made that the operator had not shaken up the bottle. One Chinese (foreign-trained) medical student died seven days after inoculation. 1200 cubic centimetres of Yersin's serum prolonged the life of a Russian student to the seventh day of illness, and 140 cubic centimetres prolonged the life of a Russian sanitary man to the fourth day. With regard to the negative phase of inoculation, Dr. Haffkine (nephew of the Indian bacteriologist) confirmed the observations of Dr. J. G. Gibb, and has found at Harbin by clinical and laboratory evidence, as well as by Wassermann reaction, that it lasts five to seven days. He advises no one to come in contact with plague cases for ten days after inoculation. Out of 130 of the Russian sanitary staff of 390 who were successfully inoculated and passed the negative stage, though living all day among highly infectious cases, *not one* has developed plague.

Clinical Symptoms

Only one case of bubonic plague has been noted—a Russian sanitary man who had a submaxillary bubo which was followed by secondary pneumonia and death. All the other cases have been primary plague pneumonia, septicæmia, and an intestinal form. Often blood-stained sputum is the first symptom, the patient still declaring himself quite well. Examination generally shows rapid pulse and fever. Often a man can walk to hospital and be dead a few hours after arrival. In other cases feelings of illness with the typical weakness and giddiness come first, and are usually followed later, but by no means always, by bloody expectoration. Intestinal symptoms with abdominal pain and diarrhœa occur, but I have not as yet heard whether there is also blood infection. A man can often be diagnosed in the street as plague-stricken by his bloated face and suffused conjunctivæ. Often in the quarantine hospitals a "contact" has normal pulse and temperature one day with no sign of illness and is dead next day. On the other hand, quite a number of cases are set aside because of fever and fast pulse which turn out to be nothing. The doctors report that every day they feel more and more the difficulty of knowing whether a patient has plague or not, till he or she is within a day of death. Dr. Mesny, the French doctor who died, met his death while examining, uninoculated and unmasked, a pneumonia case who suddenly coughed in his face.

Medical Staff.

Dr. J. G. Gibb and Dr. Wu (Gnoh Lean Tuck) have been through the epidemic at Harbin from its early stage. I am indebted to the former for much of the clinical data given. Dr. W. H. Graham Aspland and Dr. J. M. Stenhouse have also been at Harbin doing heroic work amid very infectious surroundings. They have been assisted by Chinese doctors and students. At Changchun Dr. C. W. Young and Dr. G. P. Gordon are in charge; there are also Japanese doctors. Dr. Morikawa and his wife (Japanese) have both died here while on plague duty. At Mukden, Mr. D. Christie and Mr. A. R. Young, of the Scotch Presbyterian Mission, are directing plague work in conjunction with the Chinese authorities. The death of Dr. Jackson is much deplored. A trainload of 450 coolies southward bound was returned to Mukden as plague had broken out among them and deaths occurred. It was in the hard work involved in separating out actual cases and suspects from the other contacts that Dr. Jackson met his death. It remains to be said that all the medical reports made by foreign doctors in Manchuria testify to the way the Chinese officials are *now* backing up the measures advised and the active way they have organised and are carrying out antiplague work.

Burial of the Dead.

The greatest difficulty has been experienced in disposing of the dead. 150 grave-diggers took five days to dig a pit large enough to hold 100 coffins, the ground being frozen deeply. The dead, coffined and uncoffined, accumulated in huge stacks, but the local officials absolutely refused to cremate as advised by the foreign doctors. It was not until permission had at last been obtained from the Throne that the dead could be burned. Pits 15 feet deep and 25 feet wide were dug and fires of wood made in the centre of each, then the bodies were soaked in paraffin and poured in. Those in coffins were stacked, paraffin poured over them, and set alight. This was the procedure adopted in Harbin, and has been followed in other places where the dead have been too numerous to bury.

Feb. 12th

Obituary.

ARTHUR FRAME JACKSON, B.A., M.B., B.C. CANTAB., D.T.M. LIVERP.

Dr. A. F. Jackson, whose sad death in China from plague has already been chronicled in our columns, was born at Oxton 26 years ago and educated at Merchant Taylors' School, Crosby, Liverpool, and at the University of Cambridge. At the latter place he had a successful career both as a scholar and an athlete and afterwards studied medicine at Liverpool, becoming house surgeon and house physician at the Royal Infirmary there. At the end of September last he went to China as a medical missionary, taking up his appointment as a medical missionary on the staff of the large hospital at Mukden, Manchuria, where Mr. D. Christie carries on so much work on behalf of the Scotch Presbyterian Mission. "He has died," says our correspondent on the spot, "on the very threshold of a life's work which was full of promise. Dr. Jackson was an exceedingly fine young man. When the plague epidemic broke out at Mukden the city was divided into sections and an organised system of dealing with plague cases was instituted. Dr. Jackson at once volunteered to take charge of the seventh section, which included the railway and in which 80 per cent. of the total Mukden deaths have occurred. The inns here were heavily crowded with coolies on their way from the northern infected districts, and naturally the heaviest work fell to him. Early and late he was busy, and that in a temperature 20° below zero. Many a plague-stricken coolie received the strong support of Jackson's arm when being removed to hospital, and many died the easier for his having arranged a pillow for their heads. On Jan. 23rd he was in perfect health and high spirits, as by his own efforts he had established the isolation hospital. On the morning of the 24th he seemed drowsy and was persuaded to return to bed, which he did with reluctance. Mr. Christie was called and soon detected the early symptoms of plague. Along with Mr. A. R. Young (Mr. Christie's chief assistant) injections of Yersin's serum were given and everything that medical science could do was done for him, but on Jan. 25th he died. His short period of work in China was full of usefulness, and the speech made at his burial service by the able Viceroy Hsi Liang, which is appended, has made a great impression not only among foreign residents here but also among the Chinese officials."

The following is a translation of the speech delivered by Viceroy Hsi Liang at Dr. Jackson's memorial service on Feb. 1st:—

We have shown ourselves unworthy of the trust laid upon us by our Emperor; we have allowed a dire pestilence to overrun the sacred capital.

His Majesty the King of Great Britain shows sympathy with every country when calamity overtakes them; his subject, Dr. Jackson, moved by his Sovereign's spirit and with the heart of Christ, who died to save the world, responded nobly when we asked him to help our country in its time of need.

He went forth to help us in our fight; daily where the pest lay thickest, midst the groans of the dying he struggled to cure the stricken, to find medicine to stay the evil.

Worn by his efforts, the pest seized upon him and took him from us, long ere his time. Our sorrow is beyond all measure, our grief too deep for words.

Dr. Jackson was a young man of high education and great natural ability. He came to Manchuria with the intention of spreading medical knowledge, and thus conveying untold blessings upon the Eastern peoples. In pursuit of his ideal he was cut down. The Presbyterian Mission have lost a recruit of great promise, the Chinese Government a man who gave his life in his desire to help them.

Oh, spirit of Dr. Jackson, we pray you intercede for the 20,000,000 people in Manchuria, and ask the Lord of Heaven to take away this pest so we may once more lay our heads in peace upon our pillows.

In life you were brave, now you are a spirit. Noble spirit, who sacrificed your life for us, help us still, and look down in kindness upon us all.

THE report of the committee of management of the City of London and East London Dispensary, which supplies medical and surgical advice and medicines to the necessitous poor gratuitously, and to other poor persons for small weekly payments, states that the number of attendances during the year was 111,262, of which 5073 were free, showing an increase of 2135 over those of the year 1909. The receipts from the subscribing members were £2654 14*s.* 6*d.*, being £53 13*s.* 6*d.* in excess of those for the previous year, and the donations and subscriptions amounted to £100 19*s.*

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Cagliari:* Dr. Francesco Putzu has been recognised as *privat-docent* of External Pathology.—*Erlangen:* The Chair of Laryngology having been declined by the Giessen Professor, has been offered to Professor Lange of Greifswald. *Genoa:* Dr. Enzo Bizzozero has been recognised as *privat-docent* of Dermatology.—*Giessen:* As Professor von Eicken has decided to remain at Giessen instead of accepting the offer of a chair at Erlangen, the Hessian Government has decided to build a new clinic for throat and ear diseases.—*Göttingen:* Dr. Walter Fischer has been recognised as *privat-docent* of Pathological Anatomy.—*Greifswald:* The title of Professor has been conferred upon Dr. Guido Fischer, the *docent* of dentistry, who is migrating to Marburg. Dr. Friedrich Hohmeier has been recognised as *privat-docent* of Surgery.—*Kiel:* Dr. F. Klein, *privat-docent* of physiological chemistry, has been appointed Extraordinary Professor.—*Königsberg:* Dr. M. Kirschner has been recognised as *privat-docent* of Surgery, and Dr. K. H. Sattler as *privat-docent* of Ophthalmology.—*Modena:* Dr. Giuseppe Frattin of Padua has been recognised as *privat-docent* of External Pathology.—*Naples:* Dr. Francesco Franceschi has been recognised as *privat-docent* of Neurology and Psychiatry, and Dr. Giuseppe Procopio as *privat-docent* of Midwifery and Gynæcology.—*Padua:* Dr. Italo Simon of Parma has been recognised as *privat-docent* of Materia Medica and Experimental Pharmacology.—*Palermo:* Dr. Emerico Luna has been recognised as *privat-docent* of Anatomy.—*Parma:* Dr. Giacomo Zaccarini has been recognised as *privat-docent* of External Pathology.—*Pavia:* Dr. Livio Losio has been recognised as *privat-docent* of Operative Medicine.—*Philadelphia (Jefferson Medical College):* Dr. John Funke has been appointed Lecturer on Diseases of the Heart.—*Pisa:* Dr. Luigi De Gaetani of Messina has been recognised as *privat-docent* of Anatomy.—*Rome:* Dr. Italo Giuseppe Roses has been recognised as *privat-docent* of Internal Pathology, Dr. Francesco Chidichino as *privat-docent* of Midwifery and Gynæcology, Dr. Domenico Tanturi as *privat-docent* of Otology and Laryngology, and Dr. Cesare Serono as *privat-docent* of Medical Chemistry.—*St. Louis (Washington University):* Dr. David L. Edsall, of the University of Pennsylvania, has been appointed Professor of Preventive Medicine.—*St. Petersburg (Women's Medical Institute):* Dr. V. Rokitski has been recognised as *privat-docent* of Surgery.—*Strasburg:* Dr. Uhlenhuth of Berlin has been appointed Director of the Hygienic Institute.—*Turin:* Dr. Gaetano Samperi has been recognised as *privat-docent* of Ophthalmology, and Dr. Alessandro Vaccari as *privat-docent* of Midwifery and Gynæcology.

LITERARY INTELLIGENCE.—The Cambridge University Press has made arrangements for the appearance of a comprehensive English botany, or "Flora," by Dr. C. E. Moss, the curator of the Cambridge University Herbarium, the author receiving assistance from specialists in several departments of the work. The descriptions of the plants will be new, and taken from living specimens, although older descriptions, as well as herbarium specimens, will be consulted. Engler's system of classification will, generally speaking, be followed; and the first volume to appear will deal with the earlier Dicotyledonous families from the Salicaceæ to the Chenopodiaceæ. The work will be illustrated by pen-and-ink drawings by Mr. E. W. Hunnybun, made from living specimens, each plant being drawn natural size; and in the case of critical species and varieties the name of each specimen is vouched for by some competent authority. In addition to these drawings each volume will contain numerous photographs of plants in their natural habitats, and maps showing the distribution of the more interesting genera and species. The work will probably be completed in ten volumes.—Messrs. Longmans, Green, and Co. are about to publish the Life and Letters of Sir John Hall, M.D., K.C.B., the principal medical officer of the Crimea during the great campaign. This is a biography of a distinguished Englishman written by a well-known Hindu, Mr. S. M. Mitra. Rear-Admiral Sir Massie Blomfield, who served

throughout the Crimean campaign, has written an introduction. The book deals with Sir John Hall's career in Flanders, the West Indies, Spain, South Africa (including the Kaffir War of 1852), India, and the Crimean campaign. It will contain several illustrations, including one of the wounded at Waterloo, Dr. Hall being then a hospital assistant.

UNIVERSITY OF OXFORD.—Mr. Edward Treacher Collins, F.R.C.S., has been appointed an examiner for the Diploma in Ophthalmology for 1911 and 1912.—Mr. R. C. Wingfield has obtained the degree of B.M., B.Ch.—The Board of Faculty of Medicine gives notice that in accordance with the provisions of the statute approved by Convocation on Nov. 15th, 1910, it has added the following clause to its regulations:—

No candidate, unless he be already a registered medical practitioner, shall be admitted to the examination in medicine, surgery, and midwifery until a period of at least 22 months shall have elapsed from the date of his passing the first examination for those degrees.

THE Nottingham and Notts Association for the Prevention of Consumption has organised a Tuberculosis Exhibition to be held in the Mechanics' Hall, Nottingham, which is to be opened on Monday, March 13th, by the Duke of Devonshire. The exhibits of the National Association for the Prevention of Consumption and the Women's National Health Association of Ireland, together with many items of local interest, will be on view. Dr. Philip Boobbyer, Dr. Marcus S. Paterson, Dr. R. W. Philip, Dr. J. D. Slight, Dr. Jane Walker, Dr. Ralph Williams, and Professor G. Sims Woodhead have consented to give lectures in connexion with the exhibition during the week.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL.—The annual meeting of governors and subscribers of Queen Charlotte's Hospital was held on Feb. 28th, Mr. Frederick W. Hunt (Vice-President) being in the chair. During the year 1775 women had been admitted to the wards of the hospital, and 2449 others had been attended and nursed in their own homes. The report referred to the very low rate of mortality—namely, 3·3 per 1000 in the case of the in-patients and 0·4 per 1000 in the case of the out-patients. A grant of £1500 had been received from King Edward's Hospital Fund, £500 of which were towards improvements recently carried out, including the installation of electric light and electric sterilisers. The chairman stated that the income had showed some improvement over recent years, and the committee had been able to clear off the deficit of £3287 incurred during the years 1907, 1908, and 1909. There was, however, still a debt of £2130 on the nurses' home which the committee was anxious to pay off. The work done by the hospital in training medical students, midwives, and monthly nurses steadily increased, and the applications received at the hospital for maternity nurses for private cases showed that the establishment of the private nursing staff was greatly appreciated by the public and the medical profession.

SEVENTH INTERNATIONAL CONGRESS AGAINST TUBERCULOSIS, ROME.—As we announced in THE LANCET of Sept. 10th last (p. 844) this congress will be held in Rome from Sept. 24th to 30th, 1911. The president of the congress is Professor Guido Baccelli and the secretary-general Professor Vittorio Ascoli, whose address is 36, Via in Lucina, Rome. The last International Congress against] Tuberculosis, at Washington in 1908, chose Rome as the meeting-place of the Seventh Congress. The work of the congress will be divided into three main sections as follows: (*a*) Etiology and Epidemiology of Tuberculosis; (*b*) Pathology and Therapeutics (Medical and Surgical) of Tuberculosis; (*c*) Social Defence against Tuberculosis. Those who wish to take part in the congress are requested to fill up a form which can be obtained on application, stating therein the section for which they desire to enter their name and enclosing the form together with a visiting card and a fee of 25 francs for a member's ticket. Members' relatives can obtain tickets at 10 francs each. The payment is requested to be made by international postal order payable to the treasurer of the Congress, and addressed to the secretary's office. The members' tickets give their holders the right to obtain reductions in railway fares and admission to various social gatherings. The Congress will be opened in the large amphitheatre of the Augusteo in the presence of the King and Queen of Italy. The meetings of the Congress will be held in the Castle of S. Angelo.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—Sir Arthur Chance has been appointed as the representative of the College on the General Medical Council.

A DINNER of the Irish Medical Schools and Graduates' Association will be held on Thursday, next, March 16th, at 7.15 P.M., in the Indian Room, Hotel Cecil, Strand, W.C. The Duke of Abercorn, Sir Thomas Barlow, and Sir Henry Morris will be present.

LONDON OPHTHALMOLOGICAL EXHIBITION.—The committee of the London Ophthalmological Exhibition and Conference invite attendance at an optical and electro-medical exhibition held to-day and to-morrow (Friday and Saturday) at the rooms of the Medical Society, 11, Chandos-street, Cavendish-square, W. The exhibition will be open from noon to 10 P.M. each day.

DONATIONS AND BEQUESTS.—Mr. Richard Murray of Harrogate has given 150 acres of land, £10,000 in cash, and £20,000 in investments for the building and endowment of a hospital in memory of King Edward VII.—The late Mrs. Mary Ann Fitzherbert Fraser bequeathed £5000 to the Seamen's Hospital Society.—Mrs. Jackson, mother of Dr. A. F. Jackson, who died from plague at Mukden on Jan. 26th, has presented to the Medical College of that city the £1000 received from the Chinese Viceroy.—Lord Stanmore has given £500 towards an endowment fund for the Royal Victoria Nursing Home at Ascot.—Mr. W. Graham Vivian, J.P., Clyne Castle, has subscribed £1000 to the Swansea Hospital extension scheme.—The late Rev. H. E. H. Mairis of Bristol has left, among other charitable bequests, £1000 each to the Cancer Hospital, Brompton, the Deaf and Dumb Asylum, Cannon-street, and the Hospital for Sick Children, Great Ormond-street; £500 each to the Home for Blind Children, Kilburn Priory, the Royal Hospital for Incurables, and the Brompton Hospital for Consumption; £100 each to the Throat Hospital, Golden-square, London, the Bristol General Hospital, and the Bristol Royal Infirmary.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Nurses' Registration Bill.

THE text of the Nurses' Registration Bill which was recently introduced into the House of Commons by Mr. MUNRO FERGUSON, has been issued. Its proposals are in the main similar to those which found a place in last year's Bill (*vide* THE LANCET, vol. i., 1910, pp. 831–832). It entrusts the duty of compiling a register for which only duly qualified nurses are eligible, to a General Nursing Council, and it gives power to the council to remove from the Register persons found guilty of conduct disgraceful in a professional respect.

In the first place the Bill provides for setting up "the General Council for the Registration of Nurses in the United Kingdom." The composition of this Council has given considerable trouble to the framers of the Bill in past sessions. The proposed clause for dealing with this matter is similar to that of last year's Bill, but as there is no register of nurses in existence it would be impossible to elect direct representatives of registered nurses to the first council, and the Bill provides that on the first constitution of the council in place of the direct representatives of registered nurses there should be 14 persons appointed for the most part by various associations interested in nursing. When the Register is sufficiently advanced to admit of an election of direct representatives, the provisional council will give way to the fully constituted one. The term of office is to be five years.

A correct register of nurses, to be called "the Nurses Register," is to be kept in accordance with the provisions of the Bill and the orders and regulations of the Council. Clause 10 lays down the duties and powers of the Council in language similar to that of the previous Bill.

Three clauses lay down the conditions under which admittance may be gained to the register (1) by existing nurses; (2) by nurses who shall become qualified at a future date; and (3) by nurses trained in the colonies. The conditions also correspond to those of the previous Bill.

Reciprocal recognition of the qualifications of colonial-trained nurses is given by Clause 14.

When the Nursing Council refuses to recognise any hospital or institution as an approved training school for nurses, an appeal lies to the Privy Council, whose decision shall be binding on the Nursing Council.

By Clause 15 the Nurses Register shall comprise—(1) a general register of women nurses containing the names of women who have been registered; (2) a supplementary register of male nurses; and (3) a supplementary register of asylum-trained nurses to be called the Mental Nurses Register. Clause 18 provides that unqualified persons holding themselves out as registered nurses, registered male nurses, or registered mental nurses are liable to prosecution, and on summary conviction to a fine not exceeding £10. There are also penalties for obtaining a certificate by false representation. It is noticeable that an appeal from the decision of the General Nursing Council lies to the High Court (or to the Court of Session in Scotland) in cases where the name of a nurse has been removed from the Register.

By Clause 23 it is laid down that nothing contained in the Bill shall be considered as conferring any authority to practise medicine or to undertake the treatment or cure of disease. This provision has been inserted in the Bill at the request of members of the medical profession, although the framers of the Bill contended that it had no more effect than merely to declare the existing law.

Industrial Poisoning.

The preliminary tables of cases of industrial poisoning, fatal and non-fatal accidents, and dangerous occurrences in factories, workshops, &c., during the year 1910 have been published. The figures, however, are subject to correction. The total number of cases of industrial poisoning for the year was 573, of which 48 had a fatal termination. This compares with 625 cases and 42 deaths in 1909. The figures for 1910 are made up as follows:—Lead poisoning, 505 (with 38 deaths); mercury poisoning, 10 (with 1 death); arsenic poisoning, 7; and anthrax 51 (with 9 deaths). No cases of phosphorus poisoning were reported in 1910.

University of Wales Bill.

Sir DAVID BRYNMOR JONES on Thursday, March 2nd, introduced a Bill in the House of Commons "to define and enlarge the rights of graduates in medicine of the University of Wales." The Bill, which is supported by Lord NINIAN CRICHTON-STUART, Sir HERBERT ROBERTS, and Mr. ORMSBY-GORE, was read a first time.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 1ST.

The Dangers of Flannelette.

Mr. THEODORE TAYLOR asked the Secretary of State for the Home Department whether he was aware that in England and Wales 700 persons were annually burnt to death owing to flannelette garments catching fire; that during the months of November, December, and January last over 400 persons were burnt to death in consequence of their clothing catching fire; and that it was possible to treat flannelette in such a way as to render it permanently resistant to flame; and whether the Government contemplated the introduction of any legislation as a result of the evidence presented to the coroners' committee on this question.—Mr. CHURCHILL replied: The figures referred to by my honourable friend have not been brought to my notice and I do not know on what authority they are given. From the Registrar-General's last returns, which are based on coroners' certificates, it would appear that in 1909 the number of deaths from burning clothes was 689, but only in 73 cases is it stated that the clothing was made of flannelette. As regards the possibility of treating flannelette in such a way as to render it permanently resistant to flame, I must refer my honourable friend to the findings of the Coroners' Committee on the point. I fear there is no prospect of legislation on this question during the present session.

Phosphates in Flour.

Mr. LONSDALE asked the Parliamentary Secretary to the Board of Agriculture whether the attention of the department had been called to the fact that, in violation of the Merchandise Marks Act, some millers, who were known to the Local Government Board, resorted to the practice of adding phosphates to the flour milled; and whether it was the intention of the department to put in force the powers which it possessed to check this practice.—Sir EDWARD STRACHEY replied: The Board is in communication with the Local Government Board on this subject. It would be very willing to consider the possibility of instituting proceedings under the Merchandise Marks Act in any specific case which may be brought to its notice.

Mr. LONSDALE also asked the President of the Local Government Board whether he was yet in a position to state the results of the investigation which he had instituted into the practice of adulterating flour by the addition of phosphates, whether made from the bones of animals or lime and sulphuric acid, and the nature of the action which he contemplated to put a stop to this practice.—Mr. BURNS answered: I am expecting to receive at an early date the report of my officer who has been investigating the question of flour. When I have received it the whole question will have my careful consideration.

Mr. LONSDALE: Is the right honourable gentleman aware that I asked a similar question in this House about five months ago, and the reply he gave me on that occasion was in similar terms?—Mr. BURNS: It is perfectly true that when the honourable gentleman asked that question I deemed it advisable to extend the scope of the inquiry. I am glad to say that the whole report will probably be out next month.

Mr. LONSDALE: In the meantime may I assume that people are to go on being poisoned?—Mr. BURNS: No. The honourable Member must not assume that. The interest that is being taken in this question is due to the fact that the press ascertained I had appointed two officers to make this investigation eight months ago.

Mr. LONSDALE: Perhaps the right honourable gentleman will not object to my putting a further question to him in a fortnight.—Mr. BURNS: I think long before a fortnight the report will be laid on the table of the House.

THURSDAY, MARCH 2ND.

Small-pox in London.

Mr. LANSBURY asked the President of the Local Government Board, with reference to the outbreak of small-pox in London, whether he would state how many cases had been notified; how many cases had been removed to the Joyce Green Hospital; how many of the cases were employed at the Mile End Infirmary and in what capacity; and what was the age and vaccinal condition of each patient.—Mr. BURNS (by written answer) replied: Since the beginning of the present outbreak 47 persons have been admitted at South Wharf; three of these have been found not to be suffering from small-pox; 43 cases, notified as small-pox, have been sent to Joyce Green; one case remains at the Wharf. Seven of the cases notified were persons employed at the Mile End Infirmary, five as nurses and two as scrubbers. I cannot give the age and vaccinal condition of each patient, as these particulars have not yet been verified; but it is stated that of the 44 patients six are 5 years of age or under, and of these three have not been vaccinated, three were vaccinated in infancy, two have been revaccinated since the onset of the disease. Seven are between 5 and 15 years of age, of whom one has not been vaccinated, five were vaccinated in infancy, one case is doubtful; four cases have been vaccinated since the onset of the disease. Fifteen are between 15 and 30, of whom two have not been vaccinated, 12 were vaccinated in infancy, one is doubtful; eight of these have been revaccinated since the onset of the disease. Sixteen are cases of persons over 30, of whom 14 were vaccinated in infancy; two cases are doubtful; 10 cases have been vaccinated since the onset of the disease. There has been one death, a case of an unvaccinated child of 3 years.

The Teeth of School Children.

Mr. CHARLES BATHURST asked the Parliamentary Secretary to the Board of Education whether, as the result of the statement contained in the annual report for 1909 of the chief medical officer of the Board that 20 to 40 per cent. of the 6,000,000 children in the public elementary schools of England and Wales suffered from extensive and injurious decay of the teeth, and in view of the opinion of the medical officers that such condition was largely traceable to the consumption of bread from which the germ and the skins of the grain had been mechanically extracted to ensure whiteness, and of the general ignorance as to food values and the preparation of food for human consumption, any steps were being taken by the Board, by the preparation of a special syllabus of domestic economy instruction or otherwise, to minimise the magnitude of youthful physical degeneracy disclosed by the above report.—Mr. TREVELYAN replied: The Board's medical officers have expressed no opinion as to the relation between the consumption of bread of any particular character and the decay of the teeth.

MONDAY, MARCH 6TH.

An Alleged Outbreak of Trachoma.

Mr. RAINY asked the Secretary of State for the Home Department whether his attention had been called to the outbreak of trachoma at the Dover Gordon Boys' Home; whether he was aware that boys were returned to the home by the emigration authorities as not passable by them as emigrants owing to their suffering from this disease; whether he was aware that attempts were made to draft boys under observation into the navy and army unknown to the doctors in charge of the cases; whether he was aware that the segregation ordered by the oculist first called in was stopped and that since that date a new outbreak had occurred; whether he was aware that it was now proposed to dismiss all the boys to their homes without guarantee that they were free from infection of this most contagious disease; and what steps he proposed to take to deal with this situation.—Mr. CHURCHILL replied: I had not heard of this matter until my honourable friend's question appeared on the paper on Saturday. The school is not under the inspection by my department, but I will at once see that inquiry is made. I may say that the Home is not connected with the National Memorial Gordon Boys' Home at Woking.

School Children and Vaccination.

Mr. RAMSAY MACDONALD asked the President of the Board of Education whether any inspection of school children attending London County Council schools to ascertain the vaccinal condition of such children had taken, or would take, place; whether it was proposed to exclude unvaccinated children from such schools; whether such action was in accordance with the regulations of the Board of Education, and what action he proposed to take in the matter.—Mr. RUNCIMAN replied: I have no definite information as to any action which the London County Council have taken or are about to take to ascertain whether children in public elementary schools have or have not been vaccinated. I have several times expressed my view on the matter and may refer the honourable Member to an answer which I gave in this House on Oct. 14th, 1908, when I said that "I strongly deprecate any attempt on the part of local authorities to use the machinery of medical inspection for the purpose of enforcing vaccination. Such action is likely to discredit medical inspection in the eyes of many parents who would otherwise be glad to take advantage of it." With regard to the second part of the question, I have no information as to any proposal to exclude unvaccinated children from the schools. In the circumstances the third and fourth questions do not arise.

Viscount HELMSLEY: Seeing that recently there has been an outbreak of small-pox will not the right honourable gentleman reconsider his advice to the local education authorities in reference to medical inspection, seeing that the advice may render parents unwilling to go in for vaccination for their children.—Mr. RUNCIMAN: No, sir, I have no intention whatever of altering my advice. The case of epidemics is fully dealt with in the code.

The Outbreak of Small-pox.

Dr. HILLIER asked the President of the Local Government Board how many cases of small-pox there were at present reported in London; and whether he had requested medical officers of health to use every legitimate means to induce all those who had been brought in contact with these cases to be vaccinated.—Mr. BURNS answered: Up to last night the number of cases of small-pox which had been reported was 47. A medical inspector of the Board has conferred with the medical officers of health and with the officers of the guardians in regard to the steps to be taken for dealing with the outbreak.

Dr. HILLIER: Is the medical inspector urging the vaccination of contacts?—Mr. BURNS: The medical inspector of the Board and the local

medical inspectors are, I am glad to say, doing everything that reasonably can be expected in battling with this outbreak.

Viscount HELMSLEY: Will the right honourable gentleman give definite instructions to the medical officers to urge vaccination wherever they can?—Mr. BURNS: I shall deem it my duty to leave it to the medical officer of the Board and to the local medical officers of health.

Dr. HILLIER also asked the right honourable gentlemen to state how many sanitary authorities in the country were proposing the expenditure of ratepayers' money to provide additional hospital accommodation for small-pox on the alleged ground of the danger to the community consequent on the slackening of compulsory vaccination.—Mr. BURNS replied: I have no information that any sanitary authorities are proposing to provide additional hospital accommodation on the ground mentioned.

Dr. HILLIER further asked the right honourable gentleman what was the proportion during last year, relatively to the children born, of those children who were exempted from vaccination under exemption certificates.—Mr. BURNS replied: I am not at present able to supply figures for the whole year. During the first half of the year, however, 456,533 births were registered and 110,851 exemption certificates were received.

TUESDAY, MARCH 7TH.

The Nutritive Value of Rice.

Mr. CHARLES BATHURST asked the President of the Local Government Board whether the Board was taking any steps, through the medium of the medical officers of health of the local authorities or otherwise, to demonstrate the high nutritive value, especially to young children, of unpolished as compared with polished rice, and the unwholesome character of the latter when, as often happened, a high percentage of the talc, steatite, or gypsum employed in the polishing process was left in the finished product as sold in this country. The honourable gentleman also asked whether, in consequence of Dr. J. M. Hamill's report to the Board in 1909 on facing and polishing rice, the right honourable gentleman had taken, or proposed to take, any steps by propounding an official definition of genuine rice for the purposes of the Food and Drugs Acts or otherwise to prevent the deleterious effects upon public health of the consumption of rice adulterated in the process of polishing by talc or some other glazing agent or in the process of rendering it translucent by petroleum or arachis oil.—Mr. BURNS said in reply: Perhaps I may be allowed to answer both questions together. Copies of the report made by Dr. Hamill of the Local Government Board's Food Department have been circulated to the local authorities concerned in the administration of the Sale of Food and Drugs Act, and I find that action has been taken by them in accordance with the recommendations in that report. As a result a considerable reduction has been made in the amount of extraneous matter left on the rice after the process of facing, and it does not seem necessary to take further action at the present time. I may explain that the process of polishing or facing does not remove any of the nutritive elements of the rice.

Mr. C. BATHURST: Has this report been circulated to the local authorities in London?

Mr. BURNS: A copy of the report which was published in 1909 on the subject to which the question relates was circulated to the local authorities in England and Wales, and these of course include the local authorities in London.

Medical Examination of Recruits.

Mr. HUNT asked the Secretary of State for War, seeing that a county association was only allowed one shilling for the medical examination of each recruit, and that the shilling was only paid for those recruits whom the medical practitioner passed, what steps were taken to prevent this small amount of payment having the effect of causing inefficient recruits to be passed.—Mr. HALDANE answered: The grants paid to associations for these and other medical examinations form a common fund from which fees are paid when necessary. There are many cases where fees are not payable as in camp. There is no reason to think that medical practitioners negligently pass medically unfit recruits into the force.

The Investigation of Plague.

Mr. CHANCELLOR asked the President of the Local Government Board whether the medical men who were proceeding to China to study the plague would visit places where plague was actually raging and study it on the spot; and whether they would investigate and report on the sanitary conditions of those places, or confine themselves to bacteriological studies in laboratories outside the infected area.—Mr. BURNS (in a written answer) replied: The International Plague Commission, which has been appointed on the invitation of the Chinese Government, will meet at Mukden on April 3rd, and, as at present arranged, will sit from two to five weeks. Dr. Farrar, the British representative, will arrive in the country some time earlier than this so that he may make himself personally acquainted with the local conditions. I am not at present aware of the precise nature of the methods of investigation which the Commission may decide to adopt.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.

Food and the Principles of Dietetics. By Robert Hutchison, M.D. Edin., F.R.C.P. Third edition, revised and enlarged. Price 16*s.* net.

An Introduction to Bacteriological and Enzyme Chemistry. By Gilbert J. Fowler, D.Sc., F.I.C., Lecturer in Bacteriological Chemistry in the Public Health Department, Victoria University of Manchester. Price 7*s.* 6*d.* net.

BAILLIÈRE, TINDALL, AND COX, London.

Hæmatological Chart. By Gordon R. Ward, M.R.C.S., L.R.C.P., Pathologist to the General Hospital, Tunbridge Wells. Pad containing 50 Charts. Price 2*s.* 6*d.* net.

BAILLIÈRE, J. B., ET FILS, Paris.

La Pratique des Maladies des Enfants, Diagnostic et Thérapeutique. Publié en Fascicules. IV. Maladies du Cœur et des Vaisseaux, du Nez, du Larynx, des Bronches, des Poumons, des Plèvres et du Médiastin. Par Moussous, H. Barbier, Guinon, J. Halle, Zuber, Armand-Delille, Audeoud et Bourdillon. Price, paper, Fr.16; boards, Fr.17.50.

BUCHANAN, J. COURTNEY, 41, Northfield-road, Stamford Hill, London, N.

The Function of the Voluntary Hospitals in Relation to the Proposed Public Assistance Authority. A Paper read before the Incorporated Association of Hospital Officers on Friday, May 27th, 1910. By J. Courtney Buchanan, of Lincoln's Inn, Barrister-at-Law. Second edition, revised and enlarged. Price 1*s.*

COLLINGRIDGE, W. H. AND L., 148 and 149, Aldersgate-street, London, E.C.

Salads and their Cultivation. Edited by T. W. Sanders, F.L.S., F.R.H.S. Price 1*s.* net.

CONSTABLE AND CO., LIMITED, London.

The Doctor's Dilemma, Getting Married, and The Shewing-up of Blanco Posnet. By Bernard Shaw. Price 6*s.*

DORNAN, WILLIAM J., Printer, Philadelphia.

Transactions of the American Gynecological Society. Volume XXXV. For the year 1910. Price not stated.

DULAU AND CO., LIMITED, 37, Soho-square, London, W.

The Academic Aspect of the Science of National Eugenics. A Lecture delivered to Undergraduates. By Karl Pearson, F.R.S. Price 1*s.* net.

FISCHER, GUSTAV, Jena.

Probleme der Protistenkunde. II. Die Natur der Spirochaeten. Von F. Doflein, A.O. Professor der Zoologie an der Universität München. Price M.1.20.

Handbuch der Technik und Methodik der Immunitätsforschung. Herausgegeben von Prof. Dr. R. Kraus in Wien und Dr. C. Levaditi in Paris. Erster Ergänzungsband. Price, paper, M.24; bound, M.26.50.

HÖLDER, ALFRED, Wien und Leipzig.

Supplemente zu H. Nothnagel, Spezielle Pathologie und Therapie. Herausgegeben von Prof. Dr. L. Von Frankl-Hochwart. I. Allgemeine und Spezielle Pathologie des Zwerchfells. Von Privatdozent Dr. Hans Eppinger in Wien. Price M.6.50.

JOURNAL OF NERVOUS AND MENTAL DISEASE PUBLISHING COMPANY, New York.

Outlines of Psychiatry. By William A. White, M.D., Superintendent, Government Hospital for the Insane, Washington, D.C. Third edition, revised and enlarged. Price $2.50.

KARGER, S., Berlin.

Biblisch-talmudische Medizin. Beiträge zur Geschichte der Heilkunde und der Kultur überhaupt. Von Dr. Julius Preuss, Arzt in Berlin. Price, bound, M.22; paper, M.20.

KING, P. S., AND SON, Orchard House, Westminster, London, S.W.

Report of the Proceedings of the Fifth Annual General Meeting of the National League for Physical Education and Improvement and of the First Conference of Health-Promoting Institutions held at the Guildhall, London, E.C., on the 8th and 9th December, 1910. Price 1*s.* net; post free, 1*s.* 2*d.*

KLINKHARDT, DR. WERNER, VERLAG VON, Leipzig.

Handbuch der gesamten medizinischen Anwendungen der Elektrizität, einschliesslich der Röntgenlehre. In drei Bänden. Herausgegeben von Prof. Dr. med. H. Boruttau, Privatdozent für Physiologie an der Universität Berlin, und Prof. Dr. med. L. Mann, Privatdozent für Nervenheilkunde an der Universität Breslau. Mitherausgeber für den Röntgenband: Prof. Dr. med. M. Levy-Dorn, Leitender Arzt am Rudolf-Virchow-Krankenhause in Berlin, und Prof. Dr. med. P. Krause, Direktor der medizinischen Universitätspoliklinik in Bonn. Zweiter Band, erste Hälfte. Price not stated.

Die Kinder-Seehospize und die Tuberkulose-Bekämpfung. Von Dr. Häberlein, Arzt der Seehospize auf Föhr. Mit einem Vorwort von Geheimrat Ewald, Berlin. Price, paper, M.6; bound, M.7.

LAURIE, T. WERNER, London.

In Castle and Court House, being Reminiscences of 30 Years in Ireland. By Ramsay Colles. Price 12*s.* 6*d.* net.

LEMCKE AND BUECHNER, 30–32, West 27th Street, New York.

Festschrift zur Vierzigjährigen Stiftungsfeier des Deutschen Hospitals. Herausgegeben von dem Medical Board im Auftrage der Aerzte des Deutschen Hospitals und Dispensary der Stadt New York. Price not stated.

LEONARD, W. M., 101, Tremont-street, Boston, U.S.A.

Case Histories in Pediatrics. By John Lovett Morse, A.M., M.D., Assistant Professor of Pediatrics, Harvard Medical School. Price, express prepaid, $3.00.

NISBET, JAMES, AND CO., LIMITED, London.

A Problem of To-day. The Vagrant, What to Do with Him. By R. Menzies Fergusson, D.D. Price 6*d.* net.

Nisbet's Medical Directory, 1911. In Two Parts. Part I. Directory of Medical Practitioners. Part II. The Local Directory. Price 7*s.* 6*d.* net.

ROYAL COLLEGE OF PHYSICIANS, London.

List of the Fellows, Members, Extra-Licentiates, and Licentiates of the Royal College of Physicians of London and of the Holders of the Diploma in Public Health granted jointly by the Royal Colleges of Physicians and Surgeons. MCMXI. Price not stated.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.

A Handbook of Practical Treatment. By Many Writers. Edited by John H. Musser, M.D., LL.D., Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia; and A. O. J. Kelly, A.M., M.D., Assistant Professor of Medicine in the University of Pennsylvania, Philadelphia. In three volumes. Vol. I. Price per set, £3 15*s.* net.

A Treatise on Diagnostic Methods of Examination. By Professor Dr. Hermann Sahli, Director of the Medical Clinic, University of Bern. Edited, with additions, by Nathaniel Bowditch Potter, M.D., Assistant Professor of Clinical Medicine at Colombia

University (College of Physicians and Surgeons), New York. Second edition, revised. Authorised Translation from the Fifth Revised and Enlarged German Edition. Price 27s. 6d. net.

SHERRATT AND HUGHES, London and Manchester.
Cæsarean Section in Great Britain and Ireland. With Tables. By Amand Routh, M.D. Lond., F.R.C.P. Lond. Being a Report upon the subject read at the Cinquième Congrès International d'Obstétrique et de Gynécologie at St. Petersburg in September, 1910. Price 5s. net.

WATTS AND CO., 17, Johnson's-court, Fleet-street, London, E.C.
The Origin of Life: Being an Account of Experiments with Certain Superheated Saline Solutions in Hermetically Sealed Vessels. By H. Charlton Bastian, M.D., F.R.S. Price 3s. 6d. net.

WILSON, EFFINGHAM, 54, Threadneedle-street, London, E.C.
County Court Practice Made Easy, or Debt Collection Simplified. By a Solicitor. Fourth (revised and enlarged) edition. Price 2s. 6d. net.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.
Ambulance Examination Questions: Being a Catechism on First-Aid to the Injured and Sick. By D. M. Macdonald, M.D., M.R.C.P.E. Fourth reprint edition. Price 6d. net.

YEAR BOOK PRESS, CARE OF SWAN SONNENSCHEIN AND CO., LIMITED, London).
The Schoolmasters' Year Book and Directory, 1911. Ninth annual issue. Price 12s. 6d. net.
The Public Schools Year Book. The Official Book of Reference of the Headmasters' Conference. Twenty-second Year of Publication. 1911. Edited by H. F. W. Deane, M.A., F.S.A., and W. A. Evans, M.A. Price 3s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

DIGGLE, F. H., M.B., Ch.B. Vict., has been appointed House Surgeon at the Manchester Royal Infirmary.

GRAY, H. TYRRELL, M.C. Cantab., F.R.C.S. Eng., has been appointed Surgeon to Out-patients at the Hampstead General and North-West London Hospitals.

HIGGIN, R. F., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at the Manchester Royal Infirmary.

HOASBURGH, E. L., M.B., B.S. Lond., has been appointed Senior House Surgeon at the Manchester Royal Infirmary.

JEFFERSON, G., M.B., B.S. Lond., has been appointed Anæsthetist to the Manchester Royal Infirmary.

LEA, C. E., M.D., Ch.B. Vict., has been appointed Assistant Director of the Clinical Laboratory at the Manchester Royal Infirmary.

MARSHALL, C. B., M.B., Ch.B. Vict., has been appointed Cancer Research Officer to the Manchester Royal Infirmary.

MOYES, J. M., M.B. Edin., has been appointed Assistant Medical Officer at the West Riding Asylum, Wakefield.

PULLAR, JAMES, M.D., C.M. Manitoba, has been appointed Clinical Assistant to the Chelsea Hospital for Women.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYR DISTRICT ASYLUM.—Second Assistant Physician. Salary £120 per annum, with board, lodging, &c.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BATH ROYAL UNITED HOSPITAL.—House Physician and House Surgeon. Salary each £80 per annum, with board, lodging, and washing.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Physician, also Obstetric and Ophthalmic House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BOLTON INFIRMARY AND DISPENSARY.—Third House Surgeon. Salary £90 per annum, with apartments, board, and attendance.

BRADFORD, ROYAL EYE AND EAR HOSPITAL.—Female Resident. Salary £80 per annum, with board and laundry.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Junior Resident Officer. Salary £90 per annum, with rooms and attendance.

BURY, COUNTY BOROUGH OF.—Medical Officer of Health. Salary £500 per annum.

BUXTON, DEVONSHIRE HOSPITAL.—Pathologist. Salary at rate of £250 per annum.

CARMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medical Officer. Salary £160 per annum, with board, lodging, washing, &c.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, apartments, and laundry.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Clinical Assistant.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Physician. Salary £80 per annum, with board, residence, and washing.

DOVER, ROYAL VICTORIA HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and washing.

ENFIELD AND EDMONTON ISOLATION HOSPITAL, Winchmore Hill.—Resident Assistant Medical Officer. Salary at rate of £150 per annum, with rooms, rations, and washing.

FIFE, COUNTY OF.—Assistant School Medical Officer. Salary at rate of £250 per annum.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION, Gloucester.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway.—Two House Physicians and Three House Surgeons for six months. Salary in each case at rate of £40 per annum, with board, lodging, and washing.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence.

ILFORD URBAN DISTRICT COUNCIL.—Medical Inspector of School Children for three months. Salary 60 guineas.

INDUSTRIAL FARM COLONY FOR MENTALLY DEFECTIVE.—Medical Superintendent. Salary £150 per annum.

ISPAHAN MEN'S HOSPITAL.—Assistant.

JERSEY GENERAL DISPENSARY AND INFIRMARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with apartments, board, and attendance.

LEAMINGTON, WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary £65 per annum, with board, washing, and apartments.

LEICESTER INFIRMARY.—Assistant House Surgeon for six months. Salary at rate of £60 per annum, with board, apartments, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MANCHESTER, ANCOATS HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with board, &c. Also Anæsthetist. Salary £40 per annum.

MARGATE, ROYAL SEA BATHING HOSPITAL FOR SURGICAL TUBERCULOSIS.—Resident Surgeon. Salary £120 per annum, with board, residence, and attendance.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY. — Honorary Surgeon to Throat and Ear Department.

NEWCASTLE-UPON-TYNE, UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—Demonstrator of Bacteriology. Salary £200 per annum.

NORWICH, NORFOLK COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, and all found.

PARK HOSPITAL FOR CHILDREN, Hither Green, S.E., and CHILDREN'S INFIRMARY, Carshalton, Surrey.—Assistant Medical Officer. Salary £150 per annum, with board, lodging, and washing.

PETERBOROUGH INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, and laundry.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

ROYAL NAVAL MEDICAL SERVICE.—Twelve Commissions.

SHREWSBURY, SALOP INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and residence.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

TIVERTON INFIRMARY AND DISPENSARY.—House Surgeon and Dispenser. Salary £80 per annum, all found.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Physician. Salary £100 per annum, with board, residence, &c.

WALTHAMSTOW URBAN DISTRICT COUNCIL HOSPITAL FOR INFECTIOUS DISEASES, Chingford.—Resident Medical Officer. Salary £120 per annum, with rooms and board.

WEST BROMWICH DISTRICT HOSPITAL.—Senior House Surgeon, unmarried. Salary £110 per annum, with board, residence, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Resident Surgical Officer. Salary £125 per annum, with board, apartments, and laundry. Also House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Yatton, in the county of Somerset; and at Coalisland, in the county of Tyrone.

THE Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for Preston, Garstang, and Chorley County Courts.

Births, Marriages, and Deaths.

BIRTHS.

MASINA.—On Feb. 15th, at Jamshed Hall, Nepean Sea-road, Malabar Hill, Bombay, India, the wife of H. M. Másiná, F.R.C.S., of a son.

TIPPING.—On March 1st, the wife of Harold Tipping, M.D. Lond., M.R.C.S., L.R.C.P., of Tyldesley, Palmer's Green, of twin daughters.

WILLAN.—On March 4th, at 23, Claremont-place, Newcastle-on-Tyne, the wife of R. J. Willan, F.R.C.S., of a daughter.

MARRIAGES.

HOOPER—GOSLIN.—On March 2nd, at St. Mark, Ford, Devonport, Alfred Oswald Hooper, Surgeon, R.N., to Eileen Mary, youngest daughter of the late Lieutenant-Colonel William Charles Goslin and Mrs. Goslin, formerly of Southsea.

DEATHS.

SHAW.—On Feb. 28th, at Middleton Cottage, Southport, Edmund Shaw, M.D., in his 82nd year.

TAPSON.—On March 3rd, at "Holmwood," Clapham Common, Joseph Alfred Tapson, M.R.C.S., L.R.C.P., L.S.A., in his 84th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

TRICKING THE MEDICAL MAN.

THAT the publications of the Historical Manuscripts Commission are not altogether such dull reading as some might suppose, but occasionally lapse into a light vein, may be gathered from the subjoined extract from the volume just issued, entitled "Calendar of the MSS. of the Marquess of Ormonde, K.P., Preserved at Kilkenny Castle." Under date "London, April 30, 1681," Colonel E. Cooke, who seems to have been a very lively correspondent, writes to the Duke of Ormond, then Lord Lieutenant of Ireland, a long letter, in which, after communicating certain political intelligence, he proceeds to retail some remarkable stories of the town, this being the first:—

"One habited like the better sort of serving men, having more subtility than honesty, viewing the plate exposed to show in a goldsmith's shop, took a note of it, which reading to the goldsmith as parcels his master (naming a doctor of physic the goldsmith had heard of) had sent him to buy, the goldsmith undertook to furnish him to the value of between 50 *li.* and 60 *li.* The goldsmith and his apprentices immediately fell furbishing up the plate, he appointing to call for it within two hours, because his master was to make a present of it that night. Accordingly he came just as it began to be dark, borrowed one of the servants to carry it, and the note of its weight and worth along with him. As soon as he came to the doctor's house he ordered the fellow to stay in a corner of the hall till he waited on his master, and immediately ascended the stairs to his closet door, and on knocking had entrance, told the doctor he had a kinsman a hopeful young man (exactly describing the goldsmith's servant's person and habit) who from the distemper of this new fever, though he had recovered his strength, yet had so impaired his senses that he frequently fell into raving fits, the warning he gave of their approach was to fall a-talking of plate and money, and money for plate, and then two or three men could scarce hold him; because he had not long been so distempered he the more hoped his recovery, especially encouraged from the doctor's fame; he added he would take care to convey him to the doctor, but durst not come with him, and so left the doctor to give order for a dark room against he came, and returned to the fellow for plate and note to carry to his master, who himself would weigh it, and he would immediately bring down the money. Away slips he out of the back door with his burden, and when the fellow had outstayed his patience he desired to speak with the doctor, to whom when he approached the doctor concluded him to be his bespoke patient, and being in the middle of a recipe bade him sit down and he would discourse with him presently, by his bell summoning up his servants, and as soon as at leisure began to question him how long he had been ill. He, staring, replied that he had not been ill. 'I mean,' said the doctor, 'of this new fever.' He answered he never had it in his life. The doctor would fain feel his pulse; the fellow struggled to prevent it, and began to say he came not for physic, but for money for his plate, or his plate again. Immediately three of his servants were commanded to seize him, and a chirurgeon sent for to let him blood, which by mere force he did, and to take a great quantity from him, nay after sent for a barber to shave off his hair, and the more the fellow argued for his plate or money, the more madman he was accounted, and having lost his blood and hair was clapped into a dark room, not only kept there that night, but the next day also, and the night following. The goldsmith all this while, concluding his servant run away with his plate, was determined to garet him, but a gentleman accidentally coming to the doctor and he mentioning his new patient, the gentleman's curiosity tempted him to see him, who (it seems) the fellow had seen and began to declare whose servant he was. The gentleman knew him not in that disguise, but sending for his master the cheat came out."

THE PLAGUE IN CHINA: THE SCARE ABOUT CHINA TEA.

A CORRESPONDENT has called our attention to an advertisement appearing in the *Birmingham Daily Mail* under the head of "Black Death in China," with the subtitle "Danger of Plague Germs in the Cheap China Tea now Used in so many Blends." The advertisement goes on to state that fear is entertained in many quarters lest the germs of plague should gain a footing in England through merchandise reaching this country from China—"particularly is this possible in connexion with tea, as owing to the present extremely dear markets all the cheaper teas now being sold are perforce largely mixed with low grade tea from China to bring down the price." We find the suggestion that those who drink China tea may catch the plague to be a very wild and random one, and if it has been made on purely commercial grounds we think that the public has a right to resent the gruesome suggestion. To begin with, the present stock of China tea was probably bonded before the outbreak of plague in China, while the endemic is taking place at an enormous distance from the tea fields or the ports where it is shipped to Europe. These facts, together with the precautions taken by the Board of Customs, render it impossible that China tea should become a vehicle for the spread of plague.

THE POST OF MEDICAL OFFICER AND PUBLIC VACCINATOR FOR DISTRICT NO. 5 OF PENZANCE.

To the Editor of THE LANCET.

SIR,—May I ask through your columns that any medical man who intends applying for this post now advertised as to be vacant on March 16th will first communicate with Dr. C. Branwell, "Bellair," Penzance.

I am, Sir, yours faithfully,

R. C. LAWRY,

Honorary Secretary, West Penwith Medical Society.

Penzance, March 8th, 1911.

A WARNING.

THE enclosed description has been sent to us by the head of an important pathological laboratory. We publish it as it may safeguard others from being victimised as our correspondent has been. It is quite probable that the man described below has been going around to the British laboratories for some time, and the description agrees with that of a man who fleeced the director of one of the London laboratories about two years ago.

Description.—"A short, stout, dyspnœic man, about 5 feet 4 inches in height, aged about 55 years. Jewish-looking, complexion tawny, full head of greyish-white hair, which is slightly curly; similar moustache. Nose thick, and bent slightly to one side. Manners very insinuating; well dressed; American accent. Poses as a medical man and speaks as if he knew prominent colleagues intimately."

We shall be glad to hear from anyone who has suffered from relations with this ingratiating person.

THE ISLAND OF ST. VINCENT.

IN his annual report on the Blue-book of this colony (an island about 95 miles west of Barbados, 18 miles in length and 11 in breadth, comprising an area of 140 square miles) the Hon. C. Gideon Murray, the Administrator, states that the present population is estimated by the Registrar-General at 53,448. The births registered during the year numbered 1687, of which 951 were illegitimate; marriages numbered 161 and the deaths totalled 831. Public health generally was good during the year. In Union and Mayreo islands, however (two of the Grenadine group), an epidemic of enteric fever broke out. Fourteen cases occurred, each of which was removed to the Carriacou Hospital to be treated there. Efficient disinfective and other precautionary measures were at once adopted, with satisfactory results. It was ascertained that the infection had been introduced from Carriacou (the largest of the group of Grenadines attached to the Grenada Government), where an epidemic prevailed almost throughout the year. The water-supply in the Grenadines is in all cases from wells or tanks. There must consequently always be a possibility of recurrent epidemics of enteric fever until such time as all the public wells of these islands are closed, covered in, and provided with pumps. During the past year a good deal has been accomplished by the Government in this direction.

During the year there were 703 admissions to the Colonial Hospital; the daily average of cases treated was 55; the death-rate was 6·8 of the total cases. Operations numbered 203. The medical officer is greatly assisted in his work by the presence of an efficient European nurse-matron selected by the Colonial Nursing Association. The number of inmates of the Leper Asylum on March 31st, 1910, was 6; during the year there had been 2 admissions and 2 deaths. Under a new Public Health Ordinance the compulsory segregation of lepers is provided for.

The rainfall for the year was 106·77 inches. Rain fell on 236 days the maximum fall in 24 hours being 3·43 inches on June 19th. The mean monthly temperature was 77·2° F.; the maximum was 80·4° (in December), and the minimum 74·6° (in January). Except in August and September, when the atmosphere is uncomfortably hot, although not even in those months insalubrious, the climate may be regarded as most healthy for both Europeans and coloured persons. Malaria is hardly known, while yellow fever has proved itself to be a disease of the past. During the year there was a complete absence of all diseases notifiable under the Inter-colonial Sanitary Convention.

Mr. Murray, in closing his report, observes: "An attempt was made during the year to promote a company for the erection of a really good hotel in the chief port of Kingstown. For the moment the matter is in abeyance, but so soon as the question of steamship communication is settled it will be taken up again. St. Vincent is without good hotel accommodation, which is highly essential if she is to become a resort for health-seekers and travellers, the qualifications for which she possesses in a large degree. The scenery is beautiful; the views are magnificent; the climate, moreover, is one of the healthiest in the West Indies, and from December to April compares favourably with the French or Italian

Riviera. There are charming walks, rides, and drives, and many objects of historic interest may be seen. A fair main road runs all round the island, and there are good bridle-paths in the interior. The sea-fishing and sea-bathing are excellent, while a picturesque natural nine-holed golf-course has just been established in one of the prettiest situations in the island. The more actively inclined will be rewarded by climbing the quiescent volcano Soufrière, which is not difficult of ascent. The volcano has erupted only three times in the last 300 years—viz., in 1718, 1812, and 1902."

PAYMENT OF THE CHIEF MEDICAL OFFICER OF INSURANCE COMPANIES.

To the Editor of THE LANCET.

SIR,—I shall be much obliged to you if through your columns you will kindly inform me how the head office medical officer of an insurance company or friendly society—he who scans the completed proposal schedules—is paid; whether a fixed sum or capitation grant, and how the rate is computed? I am, Sir, yours faithfully,

March 6th, 1911. J. E., F.R.C.S.

**** The principal medical officer of an insurance company is usually paid by salary. The sum varies with the number of days in each week that the officer attends the offices of the company. In the majority of cases the duties include the examination of applicants.—ED. L.

THE PRUDENTIAL ASSURANCE CO., LIMITED.

THE report of this vast undertaking for 1910 has just been issued. The total number of policies in force in both the ordinary and industrial branches, taken together, numbered at Dec. 31st, 1910, 19,724,323 as against 19,258,033 at Dec. 31st, 1909, an increase of 466,290 policies during the year. The premiums for 1910 amounted to £12,232,438 as against £11,881,877 for 1909, an increase of £350,561. The assets of the company for 1910 amounted to £77,529,226 as compared with £74,201,701 for 1909, an increase of £3,327,525. It is interesting to calculate that the annual premium received in respect of the policies in the industrial branch amounted to an average of not quite 8*s.* each, whereas the average annual premium received for each policy in the ordinary branch was a little more than £5 6*s.* We observe that the company's accounts are set out differently for 1910 and are headed "Assurance Companies Act, 1909, Third Schedule and First Schedule," whereas the Company's accounts for 1909 were headed "Life Assurance Companies Act 1870, Third Schedule and Fourth Schedule." The directors in continuation of the policy adopted last year have considered it advisable to write down certain securities. This is no doubt a wise policy. In the ordinary branch a reversionary bonus at the rate of £1 14*s.* per cent. on the original sums assured has again been added to all classes of participating policies issued since the year 1876, and the directors announce an increase in the rate of bonus in the industrial branch of the company. This small comment can do but scant justice to the huge figures of this company. The best way for those interested is to obtain the accounts themselves and revel in their "millions."

W. E. L.—The work, the title of which our correspondent wants to know, is probably "Lectures on Cosmetic Treatment," by Dr. Edmund Saalfeld of Berlin, translated by J. F. Halls Daily, M.D., 5*s.* net, Rebman, Limited, London. It was reviewed in THE LANCET of August 6th, 1910, p. 343.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for 1911:—

March 23rd (Paris).—First Congress of French Medical Journalists.
" 28th–April 25th (Tunis).—Exhibition of Hygiene.
April 4th–7th (London).—Fourth Annual Nursing and Midwifery Conference and Exhibition.
" 18th–20th (Paris).—Third Congress of Physiotherapy of French-speaking Physicians.
" 18th (Berlin).—Tenth Congress of the German Orthopædic Surgery Society.
" 19th–22nd (Berlin).—German Surgical Congress. (Fortieth Annual Meeting.)
" 19th–22nd (Wiesbaden).—Twenty-eighth German Congress of Internal Medicine.
" 20th–22nd (Groningen).—Thirteenth Nature and Medical Congress.
May 30th (The Hague).—International Congress on Opium.
May (Washington).—Conference on the Protection of Industrial Property. (Question of False Marking of Goods.)
" (Paris).—International Sanitary Conference (Prevention of Plague).
" 30th–June 2nd (London).—National Conference on the Prevention of Destitution.
May–October (Dresden).—International Hygiene Exhibition.
May–October (London, Crystal Palace).—Festival of Empire Imperial Exhibition. (Profits to King Edward VII. Hospital Fund.)
May–October (?) (London, Shepherd's Bush).—Coronation Exhibition.
" (Los Angeles, Cal.).—American Medical Association.
June 5th–8th (Kolberg, Prussia).—Fifth International Congress of Thalassotherapy.
June and July (Romford).—Town Planning and Modern House and Cottage Exhibition.
July (Bergen).—Seventh Norwegian Congress of Internal Medicine.
" (Birmingham).—British Medical Association.
July 24th–28th (London).—Second International Congress of Urology.
" 24th–29th (Belfast).—Congress of the Royal Sanitary Institute.
" 26th–29th (London).—Universal Races Congress.
August 15th–21st (Dublin).—Royal Institute of Public Health.
" 30th–Sept. 2nd (Berlin).—Third International Laryngo-Rhinological Congress.
" 30th–Sept. 6th (Portsmouth).—British Association.
September (Paris).—First Congress of the International Medical Association for the Prevention of War.
" (Brussels).—Exhibition of Fractures.
" (Genoa).—International Exhibition of Marine Hygiene.
September–November (Antwerp).—International Exhibition of Alimentation, Brewing, Wines, and Liqueurs.
Sept. 11th–13th (Berlin).—National Congress for the Study and Prevention of Infantile Mortality (*Gouttes de Lait*).
" 11th–13th (Vienna).—German Urological Society.
" 11th–16th (The Hague).—Thirteenth International Congress on Alcoholism.
" 18th–23rd (Sydney).—Australasian Medical Congress.
" 18th–24th (Turin).—Fourth National Congress of Hygiene.
" 24th–30th (Rome).—International Congress on Tuberculosis.
" 25th–29th (Rome) Seventh International Congress of Dermatology and Syphilology.
" 26th–30th (Brussels).—Third Congress of the International Society of Surgery and Exhibition of Fractures.
October (Cologne).—International Congress of Criminal Anthropology.
Oct. 1st–4th (Liége).—Second Congress of Alimentation.
" 2nd–5th (Turin).—International Congress of Pathology.
Dec. 4th–9th (Havana, Cuba).—American Public Health Association.
(Date not fixed) (Montreal).—Canadian Medical Association.
(Date not fixed) (Rome).—International Exhibition of Social Hygiene.
(Date uncertain) (Turin).—International Exhibition of Industry and Labour.

In 1912:—
Spring (London).—Second Optical Convention.
July (?) (Cologne).—International Congress of Nurses.
September (Prague).—International Congress of Radiology and Medical Electrology.
September (Berlin).—Sixth International Congress of Obstetrics and Gynæcology.
" Visit of German Medical Men to America.
Nov. 22nd–29th (Washington, D.C.).—Fifteenth International Congress of Hygiene and Demography.

In 1913:—
(London).—Seventeenth International Congress of Medicine.
(London).—Historical Medical Exhibition. (Organised by Mr. Henry S. Wellcome.)
(Dresden (?)).—International Conference on Cancer.
(Washington).—Congress of American Physicians and Surgeons.
August (Buffalo).—Fourth International Congress of School Hygiene.

In 1914:—
(Vienna).—Third International Congress for Professional Diseases.

In 1915:—
(London).—International Prison Congress.
(London).—Imperial Exhibition (?)

The following journals, magazines, &c., have been received:—Paris Médical, Pharmaceutical Journal, Annales de l'Institut Pasteur, Nederlandsch Tijdschrift voor Geneeskunde, Transvaal Medical Journal, Archives de Médecine et Pharmacie Navales, Gazzetta degli Ospedali, Progrès Médical, Boston Medical and Surgical Journal, Canadian Medical Association Journal, Allgemeine Wiener Medizinische Zeitung, Times of India, Pioneer Mail, Presse Médicale d'Egypte, Office International d'Hygiène Publique Bulletin, Medical Record, Il Morgagni, St. Mary's Hospital Gazette, Journal of Mental Science, Journal of Tropical Medicine and Hygiene, Revue d'Hygiène et de Police Sanitaire, Bulletin de la Société de l'Internat des Hôpitaux de Paris, Archives Espanoles de Neurologia, Psiquiatria y Fisioterapia, University of Pennsylvania Medical Bulletin, La Quinzaine Thérapeutique, Cornhill Magazine, Ophthalmic Literature, Magazine of the London (Royal Free Hospital) School of Medicine for Women, Revue de Psychiatrie, Journal of Nervous and Mental Disease, The British Journal of Dental Science, Dominion Medical Monthly, Medical Review of Reviews, The Therapeutic Gazette, The Journal of Laryngology, Public Health, The Nation in Arms, The Zoophilist and Animals' Defender, Guy's Hospital Gazette, Archives de l'Institut Pasteur de Tunis, Annali di Medicina Navale e Coloniale, Archives of Internal Medicine, Dublin Medical Journal, Lady Minto's Indian Nursing Association Report, The Child's Guardian, Revista de Los Hospitales, Indian Medical Gazette, St. Bartholomew's Hospital Journal, St. Thomas's Hospital Gazette, Annual Reports of the Royal Dental Hospital of London, Bulletin of the Johns Hopkins Hospital, Australasian Medical Gazette, The China Medical Journal, The Abolitionist, Proceedings of the Royal Society of Medicine, Edinburgh Medical Journal, Local Government Review, The Contemporary, The Burlington Magazine.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

TUESDAY.

SURGICAL SECTION (Hon. Secretaries—Jonathan Hutchinson, L. A. Dunn): at 5.30 P.M.

Papers:

Mr. Rickman J. Godlee: Myositis Ossificans and its Results.
Mr. G. H. Makins, C.B.: Myositis Ossificans.
Mr. A. A. Bowlby, C.M.G.: The Formation of Bone in Periosteum separated by Injury.
Mr. J. Berry: Congenital Pouch of the Bladder treated by Excision.
Mr. C. H. Fagge: The Inguinal Method of Radical Cure of Femoral Hernia.
Mr. P. C. Fenwick: Rupture of the Bladder followed by Gangrene.

PATHOLOGICAL SECTION (Hon. Secretaries—C. Bolton, J. C. G. Ledingham), at the Imperial Cancer Research Laboratory, Victoria Embankment: at 8.30 P.M.
Laboratory Meeting.

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—H. G. Adamson, J. H. Sequeira), at 11, Chandos-street, W.: at 5 P.M.

Cases and Specimens:

Mr. J. H. R. McDonagh: Case of Congenital Xanthoma, with Microscopical Sections.
And other Cases.

FRIDAY.

OTOLOGICAL SECTION (Hon. Secretaries—H. J. Marriage, Sydney Scott), at 11, Chandos-street, W.: at 5 P.M.

Discussion

On Trauma in Relation to Otology (opened by Dr. W. Milligan and Mr. C. A. Ballance, M.V.O.).

Demonstration:

Mr. Cheatle: Fifteen Temporal Bones illustrating Injuries to the Auditory Apparatus.

Members are requested to send Cases and Specimens illustrating the subject.
Members of the Surgical Section are specially invited.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretaries—Reginald Morton, G. Harrison Orton): at 8.30 P.M.

Paper:

Mr. A. D. Reid: Technique of Skiagraphy (illustrated by lantern slides and a demonstration of a new tube stand).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Dr. N. Raw: The Influence of Diabetes on Tuberculous Infections of the Human Body.—Mr. D'Arcy Power: The Influence of Syphilis on Tuberculous Infections of the Human Body.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY.—8 P.M., Prof. J. A. Fleming: Applications of Electric Heating. (Cantor Lecture II.)
WEDNESDAY.—4.30 P.M., Col. C. E. Cassal, V.D.: The Adulteration of Food.

CHELSEA CLINICAL SOCIETY, Chelsea Dispensary, Manor-street, King's-road, S.W.

TUESDAY.—8.30 P.M., Annual Clinical Debate on the Treatment of Colitis (opened by Dr. W. H. White and Dr. R. Hutchison on Some Principles in the Treatment of Colitis). Followed by a General Discussion. Open to all members of the Medical Profession.

ROYAL METEOROLOGICAL SOCIETY, Institution of Civil Engineers, Great George-street, Westminster, S.W.

WEDNESDAY.—7.30 P.M., Prof. H. H. Turner: What Can We Learn from Rainfall Records? (Illustrated by lantern slides.)

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Dr. R. Strong (Manila): A Note on the Specific Cure of Yaws by Dioxy-diamido-arseno-benzol (with epidiascope).—Dr. J. P. Maxwell (Amoy): The Use of Santonin in the Treatment of the Intestinal Affections of the Tropics.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Dr. A. F. Hertz: Sensibility of the Alimentary Canal in Health and Disease (Goulstonian Lecture).

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. G. Pernet: Clinique (Skin). 5.15 P.M., Lecture:—Dr. J. Blumfeld: Anæsthetics in Abdominal Operations.
TUESDAY.—4 P.M., Dr. J. Collier: Clinique (Medical). 5.15 P.M., Lecture:—Mr. S. Hastings: Chronic Suppuration of the Antrum.
WEDNESDAY.—4 P.M., Mr. C. Ryall: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. F. J. Wethered: Asthma.
THURSDAY.—4 P.M., Mr. G. B. M. White: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. D. Forsyth: Diagnostic Difficulties in Children.
FRIDAY.—4 P.M., Mr. M. S. Mayou: Clinique (Eye.)

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Surgical Registrar: Demonstration of Cases in Wards. Dr. Simson: Diseases of Women. 12 noon: Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. S. Edwards: Urinary Surgery.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11.30 A.M.: Mr. Rtherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Bidwell: Minor Surgery.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Dr. Simson: Gynæcological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Dr. R. Jones: The Question Whether there is an Insane Temperament.
THURSDAY.—10 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Lecture: Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery. (Lecture VI.)
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Abraham: Cases of Skin Disease.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.30 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 2.15 P.M., Special Lecture:—Dr. F. Taylor: Addison's Disease.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4.30 P.M., Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 2.15 P.M., Special Lecture:—Dr. G. Rankin: Indigestion.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Dr. R. Bradford: Glycosuria.
SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. E. Gillespie), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).
TUESDAY.—Clinic:—10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient: (Dr. A. J. Whiting). 4.30 P.M., Lecture:—Dr. A. E. Giles: Diagnostic Difficulties in Gynæcology.
WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel). 4.30 P.M., Special Demonstration:—Dr. A. J. Whiting: Selected Medical Cases.
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY AND FRIDAY.—3.45 P.M., Lecture:—Dr. A. Wylie: Larynx.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. H. Tooth: Myopathy.
FRIDAY.—3.30 P.M., Clinical Lecture:—Mr. S. Scott: Otitic Meningitis.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

TUESDAY.—5.15 P.M., Demonstration:—Mr. G. E. Waugh: Diseases of Joints—Injuries and Disease of the Hip Joint: Diagnosis, Cause, Complications, Treatment. (Special Post-Graduate Course.)
THURSDAY.—4 P.M., Mr. Addison: Coxavara.
FRIDAY.—5.15 P.M., Demonstration:—Mr. G. E. Waugh: Diseases of Joints—Hip Joint (continued): Sacro-iliac Joint. (Special Post-Graduate Course.)

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace-road, S.W.

TUESDAY.—8 P.M., Discussion on Rescue Work in Mines, with a Demonstration of Apparatus in Use (opened by Dr. L. Hill). The following hope to take part in the Discussion:—Prof. J. Cadman, Dr. E. L. Collis, Dr. M. S. Pembrey, Mr. G. B. Walker, and Sergeant A. T. Winborn.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Treatment (Electrical).

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., Dr. E. B. Leech: Œsophageal Obstruction. (Post-Graduate Clinic).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (15th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (16th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor. 9 A.M., Major, 2 P.M.).

SATURDAY (18th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.) Hospitals operations are performed daily.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 8th, 1911.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 2	30·21	S.W.	...	98	59	40	49	50	Cloudy
,, 3	30·35	W.	...	64	56	49	49	50	Cloudy
,, 4	30·09	S.W.	...	63	52	48	47	49	Cloudy
,, 5	30·25	S.W.	0·07	78	50	36	37	39	Fine
,, 6	29·93	S.W.	...	57	47	37	38	40	Cloudy
,, 7	30·11	N.E.	0·20	72	47	40	41	42	Overcast
,, 8	30·12	S.W.	...	66	48	36	36	37	Fine

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